

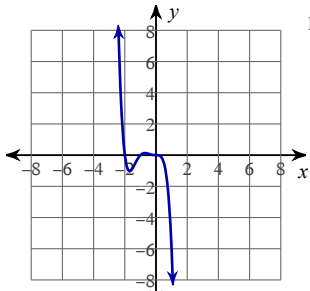
## Answers to

- 1) quadratic monomial    2) linear binomial    3) fourth degree trinomial  
 4) linear monomial    5) cubic monomial    6) quadratic monomial    7) cubic binomial  
 8) fourth degree polynomial with four terms    9) quadratic binomial  
 10) sixth degree polynomial with four terms    11)  $-b^4 + 9b^3 + b^2$     12)  $12m^4 + 2m + 3$   
 13)  $4n^4 + 5n^3 - 10n^2$     14)  $-4x^3 + 4x^2 + 8x$     15)  $-a^4 + 2a^3 + 2a^2 + 5a - 4$   
 16)  $-2x^4 - 8x^3 - 9x^2 + 10x$     17)  $-4x^3 + 6x + 6$     18)  $-16a^4 - a^2 - 7$   
 19)  $-3n^4 + 13n^3 + 2n^2 + 7n$     20)  $5p^4 - 2p^3 + 14p^2 - p - 2$     21)  $-9x^4 + 12x^3 - 5x^2 - 3x - 5$   
 22)  $2x^4 + 7x^3 + 5x^2 - 14x + 5$     23)  $4r + 4$     24)  $-42n^3 - 14n^2$   
 25)  $-16k - 8$     26)  $56n - 35$     27)  $-3n^2 + 25n - 8$     28)  $35x^2 - 58x + 24$   
 29)  $-16k^2 + 14k + 15$     30)  $-21n^2 + 50n - 25$     31)  $-8n^3 - 6n + 4$   
 32)  $-18x^3 + 48x^2 - 80x + 64$     33)  $-10n^3 - 34n^2 + 59n - 21$     34)  $-15r^3 - 48r^2 - 39r - 6$   
 35)  $4x^4 + 13x^3 - 12x^2 + 10x - 25$     36)  $-6n^4 + 24n^3 + 8n^2 - 70n + 40$   
 37)  $4k^4 + 16k^3 + 3k^2 + 22k - 24$     38)  $-14v^4 - 8v^3 + 71v^2 - 5v - 56$   
 39)  $36x^2 - 25$     40)  $1 - 49a^4$     41)  $49n^2 - 1$     42)  $36x^4 - 4$   
 43)  $64 - 16v^2$     44)  $9 - 49k^2$     45)  $4b^2 - 20b + 25$     46)  $4v^4 + 8v^2 + 4$   
 47)  $9n^2 + 24n + 16$     48)  $36n^2 - 84n + 49$     49)  $64n^2 - 112n + 49$     50)  $25n^4 + 20n^2 + 4$   
 51)  $3x^5 + x^4 + 4x^3$     52)  $x + \frac{3}{10} + \frac{2}{x}$     53)  $\frac{p^4}{4} + \frac{5p^3}{8} + 5p^2$     54)  $3x + 1 + \frac{1}{x}$   
 55)  $3x^2 + \frac{x}{2} + 3$     56)  $\frac{n^2}{2} + 2n + \frac{3}{4}$     57)  $\frac{2}{3} + \frac{1}{2n} + \frac{5}{6n^2}$     58)  $\frac{2x}{9} + \frac{1}{3} + \frac{3}{x}$   
 59)  $4a^5 + a^4 + \frac{5a^3}{4}$     60)  $\frac{3}{4} + \frac{2}{v} + \frac{1}{v^2}$     61)  $5x + 1 + \frac{9}{x-7}$     62)  $6k + 7 + \frac{1}{k-4}$   
 63)  $2r - 3 - \frac{10}{r+3}$     64)  $8x - 10 - \frac{1}{x+7}$     65)  $2n - 1 + \frac{8}{n-4}$     66)  $5k + 7 - \frac{6}{k-9}$   
 67)  $2v - 10 + \frac{8}{v-10}$     68)  $9x - 2 + \frac{8}{x-4}$     69)  $n - 6 + \frac{8}{n-8}$     70)  $2a + 2 + \frac{6}{a-9}$   
 71)  $7k^3 - 6k^2 + 3k + 6 - \frac{2}{-7+5k}$     72)  $n^3 + 6n^2 + 3n + 6 - \frac{5}{2n+8}$   
 73)  $5p^3 + 7 + \frac{6}{4p-3}$     74)  $v^3 + 9v^2 + 4v - 1 - \frac{10}{7+9v}$     75)  $a^3 - 5a + 10 + \frac{5}{6+3a}$   
 76)  $a^3 + a^2 - 2a - 9 + \frac{3}{a-8}$     77)  $x^3 - 2x^2 + 5x + 5 + \frac{1}{4x+7}$     78)  $x^3 - 5x^2 + 9x + 1 - \frac{1}{8+10x}$   
 79)  $b^3 + 7b^2 + 6b + 1 + \frac{6}{8b+5}$     80)  $a^3 - 2a^2 + 8a + 3 + \frac{9}{5a+7}$   
 81)  $n^4 - 10n^3 + 2n^2 + 5n + 6 - \frac{1}{5n-4}$     82)  $x^4 + 3x^3 + 9x^2 - 7x - 1 - \frac{3}{-7+6x}$   
 83)  $x^4 - 7x^3 + 10x^2 + x - 2 - \frac{3}{2x+2}$     84)  $p^4 - 3p^3 + 7p^2 + 6p + 2 + \frac{2}{5p-3}$   
 85)  $2x^4 + 2x^3 + 5 + \frac{1}{3x+3}$     86)  $n^4 + 2n^3 + 2n^2 + 2n + 5 + \frac{3}{6n-7}$   
 87)  $6x^4 - 3x^3 + 5x^2 + 10x - 10 + \frac{4}{3x+5}$     88)  $x^4 - x^3 - x^2 + 5x + 9 + \frac{6}{3x+5}$   
 89)  $n^4 - 4n^3 + 7n^2 + \frac{5}{6n-9}$     90)  $x^4 + 6x^3 + x^2 + 6x + 1 + \frac{8}{5x+2}$   
 91)  $5n - 5$     92)  $5k + 9$     93)  $2x + 5$     94)  $-7x - 7$   
 95)  $6x - 4$     96)  $3b + 2$     97)  $9x + 10$     98)  $2v - 10$

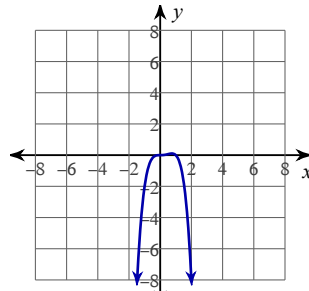
- 99)  $3n + 2$       100)  $10n + 10$       101)  $9n - 6$       102)  $4k + 4$   
103)  $3a + 4$       104)  $10a - 2$       105)  $2k$       106)  $10n$   
107)  $9x$       108)  $2m + 2$       109)  $9a - 9$       110)  $8x + 5$   
111)  $p^2 + 9p + 3$       112)  $8x^2 + 7x + 7$       113)  $p^2 + 10p + 6$       114)  $3x^2 - 8x + 2$   
115)  $10r^2 + 7r + 7$       116)  $r^2 - 3r$       117)  $n^2 + 10n - 4$       118)  $k^2 + 7k$   
119)  $2m^2 + 8m$       120)  $10r^2 + 6r - 3$       121)  $x^4 + x^3 - 8x^2 + 10x + 3$   
122)  $r^4 - 8r^3 + 3r^2 - 8r + 3$       123)  $n^4 + 10n + 6$       124)  $x^4 - 3x^3 - 7x^2 - 7x + 1$   
125)  $x^4 + 3$       126)  $4n^4 + 5n^3 + 5n^2 + 6n + 2$       127)  $p^4 - 6$   
128)  $p^4 - 4p^3 + 3p^2 - 10p - 9$       129)  $x^4 + 9x + 7$       130)  $m^4 + 2m^3 - 4m^2 + m + 6$   
131)  $\{0, -1, 5\}$       132)  $\{0, 5, -4\}$       133)  $\{0, -5, -3\}$       134)  $\{0, -1, -5\}$   
135)  $\{0, -5, 1\}$       136)  $\{0, -4, -3\}$       137)  $\{0, -1, 4\}$       138)  $\{0, 5, -2\}$   
139)  $\{0, 4, 2\}$       140)  $\{0, 5, -3\}$       141)  $\left\{-1, \frac{1+i\sqrt{3}}{2}, \frac{1-i\sqrt{3}}{2}\right\}$   
142)  $\{3 + \sqrt{5}, 3 - \sqrt{5}\}$       143)  $\{1 + 2i, 1 - 2i\}$       144)  $\{i\sqrt{2}, -i\sqrt{2}, i\sqrt{6}, -i\sqrt{6}\}$   
145)  $\{2, -1 + i\sqrt{3}, -1 - i\sqrt{3}, -2, 1 + i\sqrt{3}, 1 - i\sqrt{3}\}$   
146)  $\{0, 3, \sqrt{2}, -\sqrt{2}\}$       147)  $\{-4, 3\}$       148)  $\{0, 3, -4\}$   
149)  $\{i\sqrt{3}, -i\sqrt{3}, \sqrt{5}, -\sqrt{5}, i\sqrt{5}, -i\sqrt{5}\}$       150)  $\{3, -3, 2, -2\}$       151)  $\{4, 3\}$   
152)  $\{-1 + \sqrt{43}, -1 - \sqrt{43}\}$       153)  $\{i\sqrt{5}, -i\sqrt{5}, 3i, -3i\}$   
154)  $\left\{-3, \frac{3+3i\sqrt{3}}{2}, \frac{3-3i\sqrt{3}}{2}, -1, \frac{1+i\sqrt{3}}{2}, \frac{1-i\sqrt{3}}{2}\right\}$   
155)  $\{-4, i\sqrt{2}, -i\sqrt{2}\}$       156)  $\{0, 2, -5\}$       157)  $\left\{3, \frac{-3+3i\sqrt{3}}{2}, \frac{-3-3i\sqrt{3}}{2}\right\}$   
158)  $\{5, 2i, -2i\}$       159)  $\{1, -1, 2i\sqrt{2}, -2i\sqrt{2}\}$   
160)  $\{2i\sqrt{2}, -2i\sqrt{2}, \sqrt{2}, -\sqrt{2}\}$       161)  $\{0, i\sqrt{7}, -i\sqrt{7}, 3i, -3i\}$   
162)  $\{\sqrt{3}, -\sqrt{3}, i\sqrt{5}, -i\sqrt{5}\}$       163)  $\{-3 + i, -3 - i\}$   
164)  $\left\{1, \frac{-1+i\sqrt{3}}{2}, \frac{-1-i\sqrt{3}}{2}, -5, \frac{5+5i\sqrt{3}}{2}, \frac{5-5i\sqrt{3}}{2}\right\}$   
165)  $\{-4, i, -i\}$       166)  $\{-4 + \sqrt{41}, -4 - \sqrt{41}\}$       167)  $\{0, 1 + 2i, 1 - 2i\}$   
168)  $\{3i, -3i, 2i\sqrt{2}, -2i\sqrt{2}\}$       169)  $\{-2 \text{ mult. } 2\}$       170)  $\{4, -4\}$   
171)  $(3 + x)(9 - 3x + x^2)$       172)  $(1 - a)(1 + a + a^2)$       173)  $(2 + x)(4 - 2x + x^2)$   
174)  $(x - 4)(x^2 + 4x + 16)$       175)  $(x - 3)(x^2 + 3x + 9)$       176)  $(3 - x)(9 + 3x + x^2)$   
177)  $(4 + x)(16 - 4x + x^2)$       178)  $(a + 1)(a^2 - a + 1)$       179)  $(x - 5)(x^2 + 5x + 25)$   
180)  $(5 + x)(25 - 5x + x^2)$       181)  $(-3x - 4)(9x^2 - 12x + 16)$   
182)  $(-6u - 7)(36u^2 - 42u + 49)$       183)  $(-3 + 5x)(9 + 15x + 25x^2)$   
184)  $(4a - 3)(16a^2 + 12a + 9)$       185)  $(m - 3)(m^2 + 3m + 9)$       186)  $(5m + 1)(25m^2 - 5m + 1)$   
187)  $3u(u + 7)(u^2 - 7u + 49)$       188)  $(1 + 5x)(1 - 5x + 25x^2)$   
189)  $m(7m - 5)(49m^2 + 35m + 25)$       190)  $3x(7 - x)(49 + 7x + x^2)$   
191)  $x(3x - 4)(9x^2 + 12x + 16)$       192)  $(5m - 1)(25m^2 + 5m + 1)$       193)  $(7u + 6)(49u^2 - 42u + 36)$   
194)  $x(7 - 4x)(49 + 28x + 16x^2)$       195)  $x^2(4x + 5)(16x^2 - 20x + 25)$   
196)  $(1 - 6x)(1 + 6x + 36x^2)$       197)  $(6 - 5x)(36 + 30x + 25x^2)$       198)  $(-6 - x)(36 - 6x + x^2)$   
199)  $m^2(6m + 5)(36m^2 - 30m + 25)$       200)  $4x(6 + 5x)(36 - 30x + 25x^2)$   
201)  $x(-5x^2 - 3y^2)(25x^4 - 15x^2y^2 + 9y^4)$       202)  $(5m^2 - 7n^2)(25m^4 + 35m^2n^2 + 49n^4)$   
203)  $m(2m^2 + 5n^2)(4m^4 - 10m^2n^2 + 25n^4)$       204)  $y^2(2x^2 - 5y^2)(4x^4 + 10x^2y^2 + 25y^4)$   
205)  $4b(4a^2 - 5b^2)(16a^4 + 20a^2b^2 + 25b^4)$       206)  $b(5u^2 - 4v^2)(25u^4 + 20u^2v^2 + 16v^4)$   
207)  $4y(x^2 - 2y^2)(x^4 + 2x^2y^2 + 4y^4)$       208)  $(-6a^2 + 7b^2)(36a^4 + 42a^2b^2 + 49b^4)$   
209)  $(5x^2 - 4y^2)(25x^4 + 20x^2y^2 + 16y^4)$       210)  $(3a^2 - 7b^2)(9a^4 + 21a^2b^2 + 49b^4)$   
211)  $2y(-7x^2 + 6y^2)(49x^4 + 42x^2y^2 + 36y^4)$       212)  $(x^2 - 5y^2)(x^4 + 5x^2y^2 + 25y^4)$

- 213)  $4x(2m^2 + 5n^2)(4m^4 - 10m^2n^2 + 25n^4)$
- 215)  $(-3m^2 + 4n^2)(9m^4 + 12m^2n^2 + 16n^4)$
- 217)  $(4x^2 + 3y^2)(16x^4 - 12x^2y^2 + 9y^4)$
- 219)  $(2x^2 + 7y^2)(4x^4 - 14x^2y^2 + 49y^4)$
- 221) Possible rational zeros:  
 $0, \pm 1, \pm 2, \pm 4, \pm 5, \pm 10, \pm 20$   
 Factors to:  $f(x) = x(x + 4)(x - 5)$   
 Zeros:  $\{0, -4, 5\}$
- 223) Possible rational zeros:  $0, \pm 1, \pm 3, \pm 5, \pm 15$   
 Factors to:  $f(x) = x(x - 5)(x + 3)$   
 Zeros:  $\{0, 5, -3\}$
- 225) Possible rational zeros:  $0, \pm 1, \pm 3, \pm 5, \pm 15$   
 Factors to:  $f(x) = x(x + 3)(x + 5)$   
 Zeros:  $\{0, -3, -5\}$
- 227) Possible rational zeros:  $\pm 1, \pm 7$   
 Factors to:  $f(x) = (x + 7)(x - 1)^2$   
 Zeros:  $\{-7, 1 \text{ mult. } 2\}$
- 229) Possible rational zeros:  $\pm 1, \pm 7$   
 Factors to:  $f(x) = (x - 1)(x - 7)(x + 1)$   
 Zeros:  $\{1, 7, -1\}$
- 231) Possible rational zeros:  $\pm 1, \pm 2$   
 Factors to:  $f(x) = (x + 2)(x - 1)^2$   
 Zeros:  $\{-2, 1 \text{ mult. } 2\}$
- 233) Possible rational zeros:  $\pm 1, \pm 2$   
 Factors to:  $f(x) = (x - 1)^2(x - 2)$   
 Zeros:  $\{1 \text{ mult. } 2, 2\}$
- 235) Possible rational zeros:  $\pm 1, \pm 2$   
 Factors to:  $f(x) = (x + 1)^2(x + 2)$   
 Zeros:  $\{-1 \text{ mult. } 2, -2\}$
- 237) Possible rational zeros:  $0, \pm 1, \pm 3$   
 Zeros:  $\{0, -3, 1 \text{ mult. } 2\}$
- 239) Possible rational zeros:  $0, \pm 1, \pm 5$   
 Zeros:  $\{0, -5, -1 \text{ mult. } 2\}$
- 241) Possible rational zeros:  $0, \pm 1, \pm 7$   
 Zeros:  $\{0, 7, -1 \text{ mult. } 2\}$
- 243) Possible rational zeros:  $0, \pm 1, \pm 5$   
 Zeros:  $\{0, 1 \text{ mult. } 2, 5\}$
- 245) Possible rational zeros:  $0, \pm 1, \pm 13$   
 Zeros:  $\{0, 13, -1 \text{ mult. } 2\}$
- 247)  $(x + 1)(x - 1)(x - 2)(x + 3)$
- 250)  $(x + 3)(x + 4)(x + 5)(x + 6)$
- 253)  $(x - 5)^2(x - 6)(x - 7)$
- 255)  $(2x - 1)(x + 1)(x - 4)(x + 4)$
- 257)  $(2x + 3)(x - 3)(x + 3)(x - 5)$
- 259)  $(5x + 1)(x + 5)^2(x - 3)$
- 261)  $(3x + 1)(2x - 3)(x - 1)(x + 3)$
- 263)  $(3x + 2)(3x - 2)(x + 3)(x - 3)$
- 265)  $(2x + 1)^2(3x - 5)(3x + 2)$
- 214)  $a(x - 2y)(x + 2y)(x^4 + 4x^2y^2 + 16y^4)$
- 216)  $4k^2(-4m^2 - 5n^2)(16m^4 - 20m^2n^2 + 25n^4)$
- 218)  $u(-2u^2 + 5v^2)(4u^4 + 10u^2v^2 + 25v^4)$
- 220)  $px(-7x^2 - 3y^2)(49x^4 - 21x^2y^2 + 9y^4)$
- 222) Possible rational zeros:  $0, \pm 1, \pm 5, \pm 25$   
 Factors to:  $f(x) = x(x - 5)^2$   
 Zeros:  $\{0, 5 \text{ mult. } 2\}$
- 224) Possible rational zeros:  
 $0, \pm 1, \pm 2, \pm 3, \pm 4, \pm 6, \pm 12$   
 Factors to:  $f(x) = x(x + 3)(x + 4)$   
 Zeros:  $\{0, -3, -4\}$
- 226) Possible rational zeros:  $0, \pm 1, \pm 3, \pm 5, \pm 15$   
 Factors to:  $f(x) = x(x + 5)(x - 3)$   
 Zeros:  $\{0, -5, 3\}$
- 228) Possible rational zeros:  $\pm 1, \pm 5$   
 Factors to:  $f(x) = (x + 5)(x - 1)(x + 1)$   
 Zeros:  $\{-5, 1, -1\}$
- 230) Possible rational zeros:  $\pm 1, \pm 11$   
 Factors to:  $f(x) = (x + 11)(x + 1)(x - 1)$   
 Zeros:  $\{-11, -1, 1\}$
- 232) Possible rational zeros:  $\pm 1, \pm 2$   
 Factors to:  $f(x) = (x - 2)(x + 1)^2$   
 Zeros:  $\{2, -1 \text{ mult. } 2\}$
- 234) Possible rational zeros:  $\pm 1, \pm 7$   
 Factors to:  $f(x) = (x - 1)^2(x - 7)$   
 Zeros:  $\{1 \text{ mult. } 2, 7\}$
- 236) Possible rational zeros:  $\pm 1, \pm 3$   
 Factors to:  $f(x) = (x + 3)(x + 1)^2$   
 Zeros:  $\{-3, -1 \text{ mult. } 2\}$
- 238) Possible rational zeros:  $0, \pm 1, \pm 13$   
 Zeros:  $\{0, -13, 1, -1\}$
- 240) Possible rational zeros:  $0, \pm 1, \pm 2$   
 Zeros:  $\{0, 2, -1 \text{ mult. } 2\}$
- 242) Possible rational zeros:  $0, \pm 1, \pm 13$   
 Zeros:  $\{0, 1 \text{ mult. } 2, -13\}$
- 244) Possible rational zeros:  $0, \pm 1, \pm 7$   
 Zeros:  $\{0, -7, 1, -1\}$
- 246) Possible rational zeros:  $0, \pm 1, \pm 3$   
 Zeros:  $\{0, 3, 1 \text{ mult. } 2\}$
- 248)  $(x + 1)(x + 2)(x - 2)(x + 3)$
- 251)  $(x + 3)^4$
- 254)  $(x - 3)(x + 3)(x - 4)(x + 4)$
- 256)  $(2x + 1)(x - 1)(x + 3)(x - 6)$
- 258)  $(3x + 2)(x - 2)^2(x + 2)$
- 260)  $(2x + 1)(2x - 1)(x + 2)(x + 3)$
- 262)  $(3x + 1)^2(x - 3)(x + 3)$
- 264)  $(2x + 1)(2x - 1)(3x - 1)(3x + 2)$
- 266)  $(2x + 3)(2x - 5)(5x - 1)(3x + 7)$
- 249)  $(x + 2)(x + 4)(x - 3)(x + 3)$
- 252)  $(x + 2)^2 \cdot (x + 3)^2$

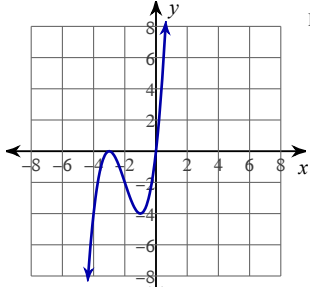
267)

Real zeros:  $\{0 \text{ mult. } 3, -2, -1\}$ 

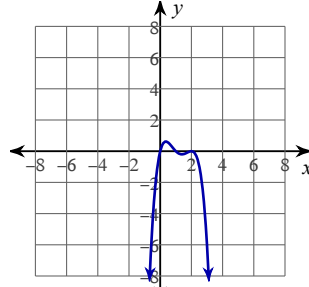
268)

Real zeros:  $\{0 \text{ mult. } 3, 1\}$ 

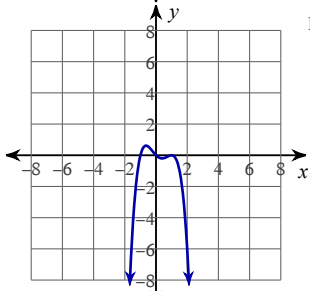
269)

Real zeros:  $\{0, -3 \text{ mult. } 2\}$ 

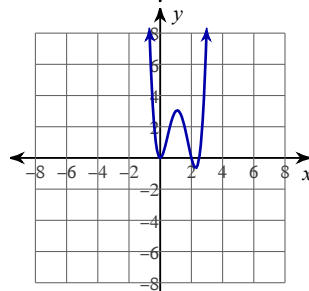
270)

Real zeros:  $\{0, 2 \text{ mult. } 2, 1\}$ 

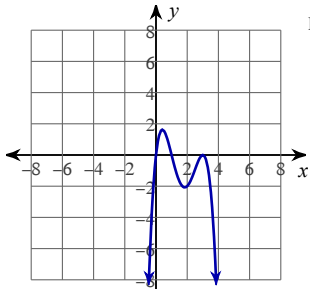
271)

Real zeros:  $\{0, 1 \text{ mult. } 2, -1\}$ 

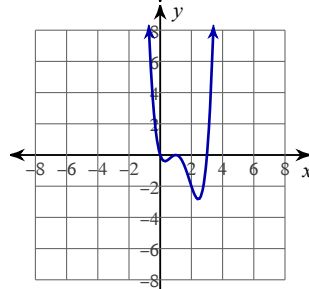
272)

Real zeros:  $\{0 \text{ mult. } 2, 2, \frac{5}{2}\}$ 

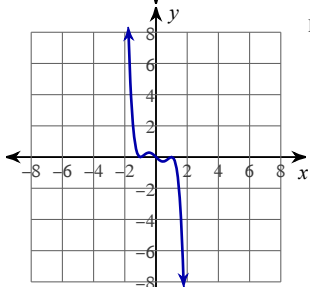
273)

Real zeros:  $\{0, 3 \text{ mult. } 2, 1\}$ 

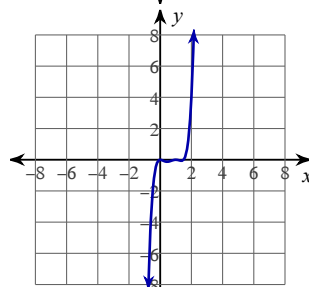
274)

Real zeros:  $\{0, 3, 1 \text{ mult. } 2\}$ 

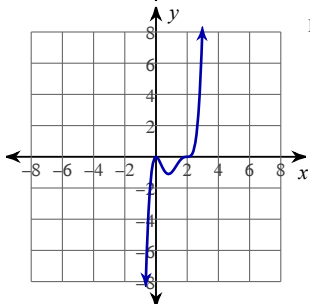
275)

Real zeros:  $\{0, 1 \text{ mult. } 2, -1 \text{ mult. } 2\}$ 

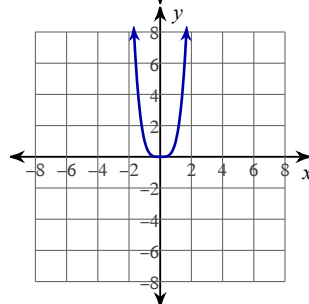
276)

Real zeros:  $\{0 \text{ mult. } 2, 1 \text{ mult. } 2, \frac{3}{2}\}$ 

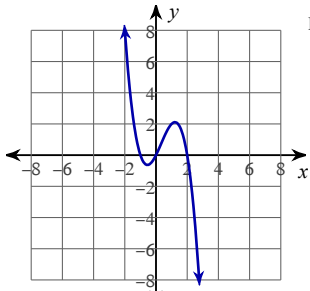
277)

Real zeros:  $\{0 \text{ mult. } 2, 2 \text{ mult. } 3\}$ 

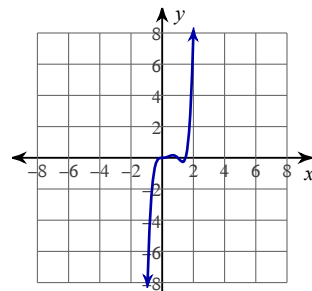
278)

Real zeros:  $\{0 \text{ mult. } 4\}$

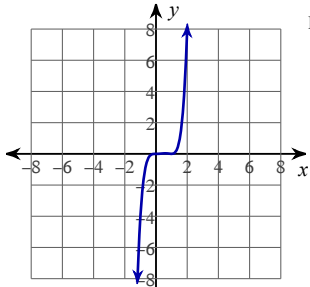
279)

Real zeros:  $\{0, 2, -1\}$ 

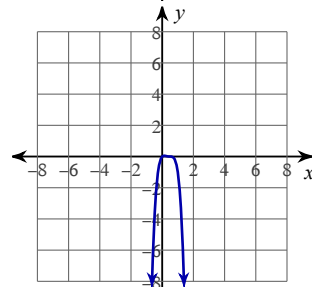
280)

Real zeros:  $\left\{0 \text{ mult. } 3, 1, \frac{3}{2}\right\}$ 

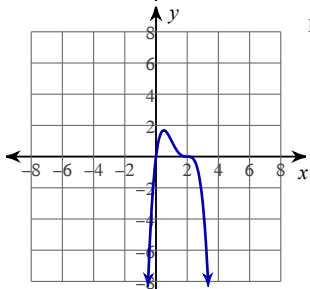
281)

Real zeros:  $\{0 \text{ mult. } 3, 1 \text{ mult. } 2\}$ 

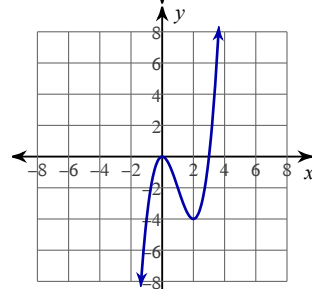
282)

Real zeros:  $\left\{0, \frac{1}{2} \text{ mult. } 3\right\}$ 

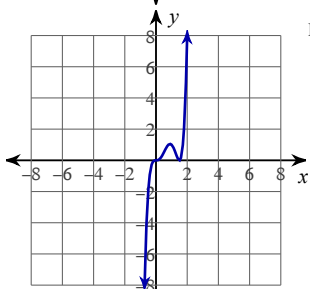
283)

Real zeros:  $\{0, 2 \text{ mult. } 3\}$ 

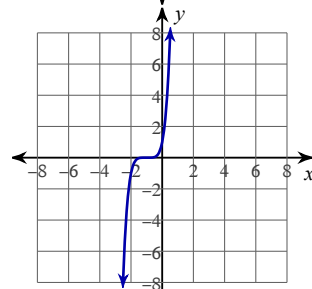
284)

Real zeros:  $\{0 \text{ mult. } 2, 3\}$ 

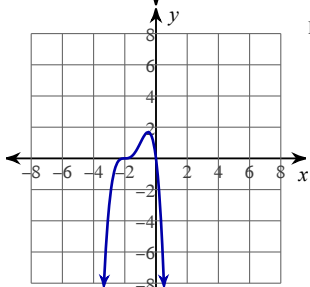
285)

Real zeros:  $\left\{0 \text{ mult. } 3, \frac{3}{2} \text{ mult. } 2\right\}$ 

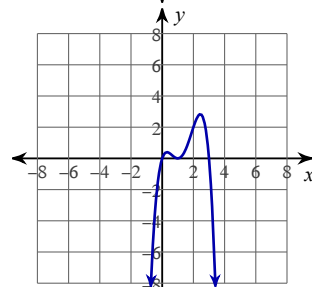
286)

Real zeros:  $\{-1 \text{ mult. } 5\}$ 

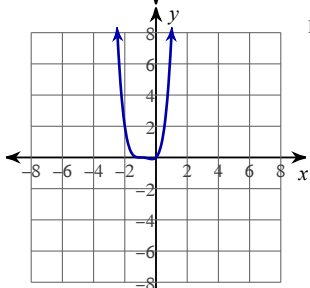
287)

Real zeros:  $\{0, -2 \text{ mult. } 3\}$ 

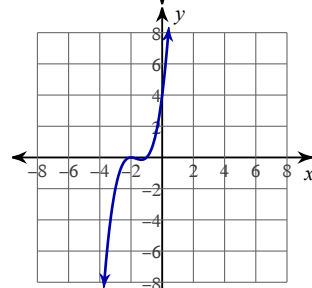
288)

Real zeros:  $\{0, 3, 1 \text{ mult. } 2\}$ 

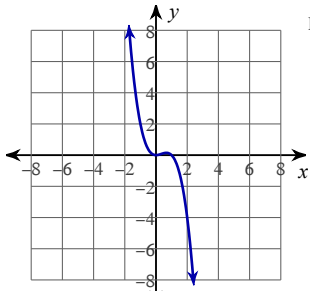
289)

Real zeros:  $\{0, -1 \text{ mult. } 3\}$ 

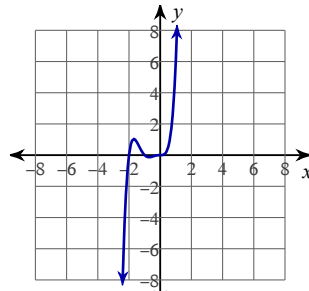
290)

Real zeros:  $\{-2 \text{ mult. } 2, -1\}$

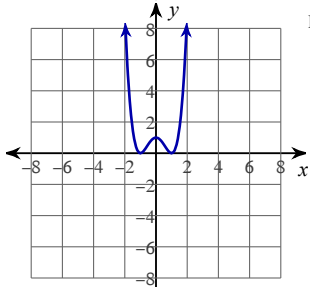
291)

Real zeros:  $\{0 \text{ mult. } 2, 1\}$ 

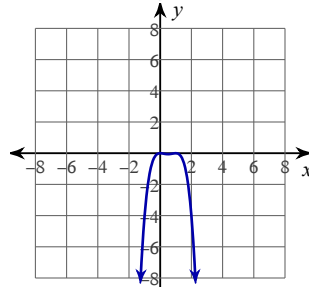
292)

Real zeros:  $\{0 \text{ mult. } 3, -2, -1\}$ 

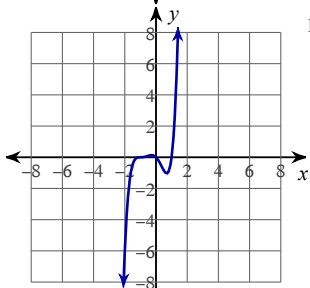
293)

Real zeros:  $\{1 \text{ mult. } 2, -1 \text{ mult. } 2\}$ 

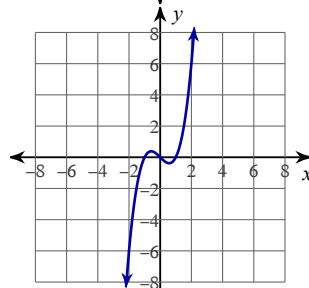
294)

Real zeros:  $\{0 \text{ mult. } 2, 1 \text{ mult. } 2\}$ 

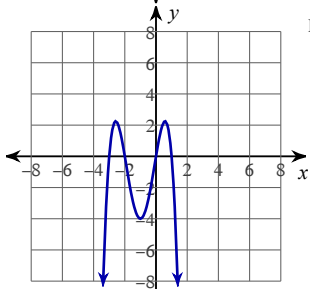
295)

Real zeros:  $\{0, 1, -1 \text{ mult. } 3\}$ 

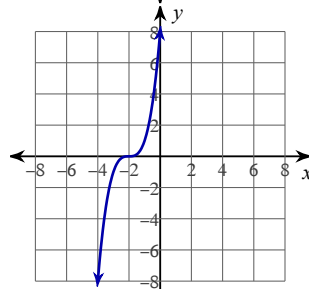
296)

Real zeros:  $\{0, 1, -1\}$ 

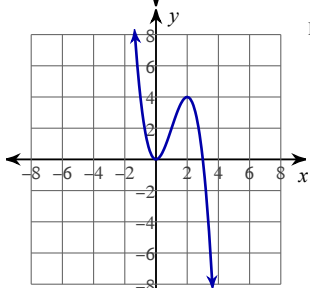
297)

Real zeros:  $\{0, 1, -3, -2\}$ 

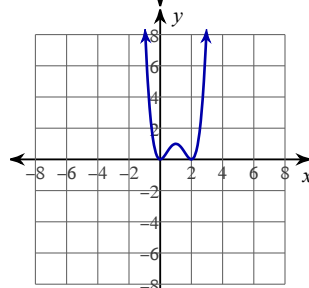
298)

Real zeros:  $\{-2 \text{ mult. } 3\}$ 

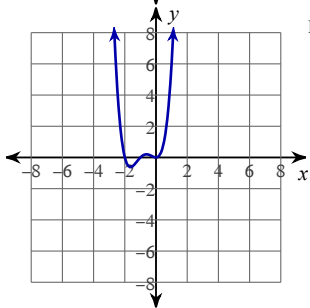
299)

Real zeros:  $\{0 \text{ mult. } 2, 3\}$ 

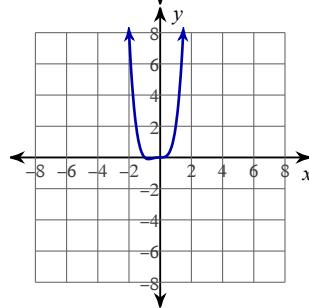
300)

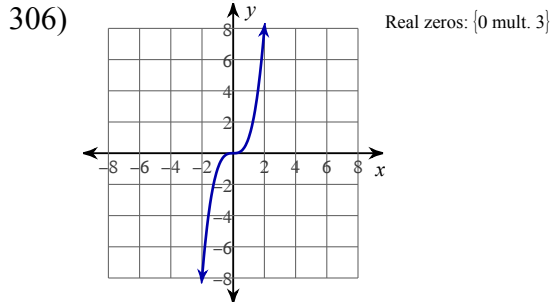
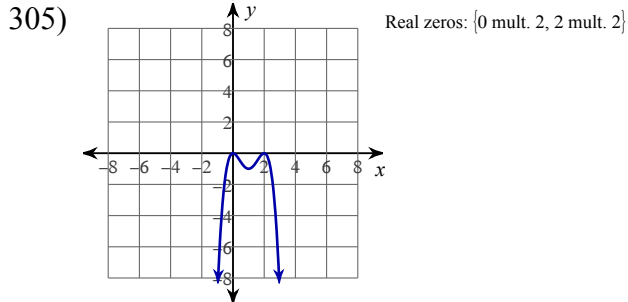
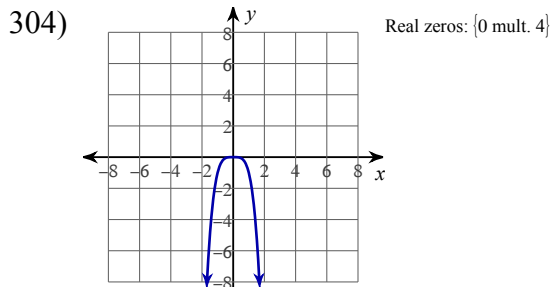
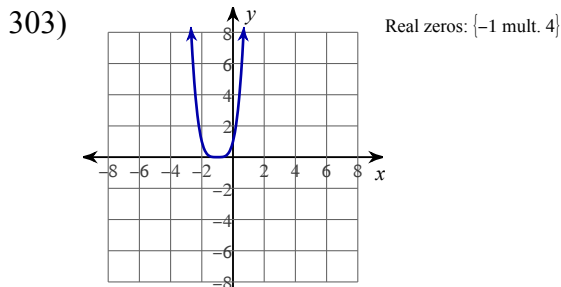
Real zeros:  $\{0 \text{ mult. } 2, 2 \text{ mult. } 2\}$ 

301)

Real zeros:  $\{0 \text{ mult. } 2, -2, -1\}$ 

302)

Real zeros:  $\{0 \text{ mult. } 3, -1\}$



307)  $\{-1, -3\}$

308)  $\{40, -40\}$

309)  $\{10, -10\}$

310)  $\{21, -21\}$

311)  $\{8, -8\}$

312)  $\{1, -1\}$

313)  $\{6, -2\}$

314)  $\{-8, 8\}$

315)  $\{-8, -10\}$

316)  $\{4, -4\}$

317)  $\{32, -32\}$

318)  $\{7, -7\}$

319)  $\{10, -10\}$

320)  $\{2, -2\}$

321)  $\{-5, 5\}$

322)  $\{-1, -5\}$

323) No solution.

324)  $\{-9, 9\}$

325)  $\{3, -3\}$

326)  $\{20, -20\}$

327)  $\{2, -14\}$

328)  $\{-9, 1\}$

329)  $\left\{\frac{4}{3}, -\frac{4}{3}\right\}$

330) No solution.

331)  $\{10, -10\}$

332) No solution.

333)  $\{-26, 10\}$

334)  $\{-2, 2\}$

335)  $\{8, -8\}$

336)  $\{8, -8\}$

337)  $\left\{0, -\frac{10}{7}\right\}$

338)  $\left\{\frac{2}{3}, 2\right\}$

339)  $\left\{5, -\frac{3}{2}\right\}$

340)  $\left\{-\frac{14}{5}, 0\right\}$

341)  $\{4, -11\}$

342)  $\{1, -5\}$

343)  $\left\{1, -\frac{5}{2}\right\}$

344)  $\left\{\frac{5}{3}, 1\right\}$

345)  $\{5, -3\}$

346)  $\left\{1, -\frac{29}{9}\right\}$

347)  $\left\{\frac{27}{5}, -\frac{97}{5}\right\}$

348)  $\left\{\frac{9}{2}, -\frac{13}{6}\right\}$

349)  $\{-1\}$

350)  $\{6, -6\}$

351)  $\{-7, 7\}$

352)  $\left\{\frac{11}{2}, -\frac{11}{2}\right\}$

353)  $\left\{0, -\frac{72}{7}\right\}$

354)  $\left\{\frac{11}{4}, -\frac{3}{4}\right\}$

355)  $\left\{\frac{8}{5}, \frac{7}{5}\right\}$

356)  $\left\{\frac{4}{5}, -\frac{4}{5}\right\}$

357)  $\left\{-\frac{31}{14}, \frac{7}{2}\right\}$

358)  $\left\{\frac{35}{18}, -\frac{1}{2}\right\}$

359)  $\left\{-\frac{16}{9}, \frac{557}{207}\right\}$

360)  $\left\{\frac{113}{30}, \frac{2}{5}\right\}$

361)  $\left\{\frac{4}{3}, -\frac{11}{3}\right\}$

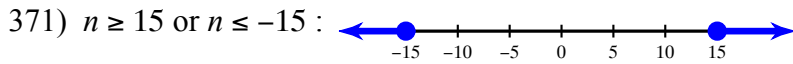
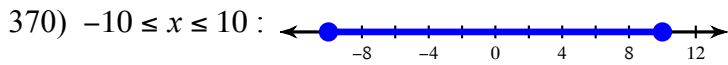
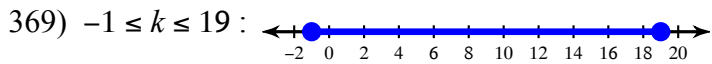
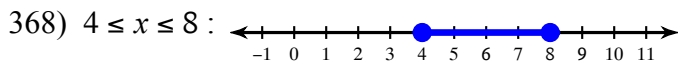
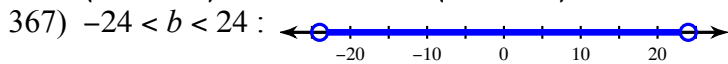
362)  $\left\{-\frac{23}{7}, \frac{705}{91}\right\}$

363)  $\left\{\frac{383}{465}, -\frac{6}{5}\right\}$

364)  $\left\{\frac{11}{185}, -\frac{3}{5}\right\}$

365)  $\left\{\frac{9}{2}, -\frac{19}{2}\right\}$

366)  $\left\{\frac{4}{9}, -\frac{1163}{126}\right\}$



372)  $n \geq 9$  or  $n \leq -9$  :

373)  $r < -3$  or  $r > 3$  :

374)  $x > -2$  or  $x < -4$  :

375)  $x \leq -9$  or  $x \geq 9$  :

376)  $r > 5$  or  $r < 1$  :

377)  $k \geq \frac{323}{28}$  or  $k \leq -\frac{5}{4}$  :

378)  $-\frac{40}{9} < n < \frac{40}{9}$  :

379)  $p > \frac{4}{5}$  or  $p < -\frac{22}{15}$  :

380)  $-\frac{5}{3} \leq p \leq \frac{5}{3}$  :

381)  $x \leq -1$  or  $x \geq 1$  :

382)  $-\frac{11}{3} < p < \frac{11}{3}$  :

383)  $-\frac{1}{4} \leq k \leq \frac{15}{4}$  :

384)  $v \geq 1$  or  $v \leq -1$  :

385)  $r \leq -1$  or  $r \geq 1$  :

386)  $v > \frac{9}{5}$  or  $v < -\frac{9}{5}$  :

387)  $-6 < a < 6$  :

388)  $-8 < k < 28$  :

389)  $m > -3$  or  $m < -15$  :

390)  $b \geq 3$  or  $b \leq -21$  :

391)  $b > 2$  or  $b < 0$  :

392)  $-6 < x < -2$  :

393)  $-9 < x < -3$  :

394)  $x \geq 4$  or  $x \leq -16$  :

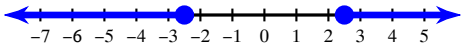
395)  $-9 \leq p \leq 9$  :

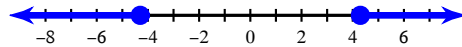
396)  $-4 \leq p \leq 4$  :

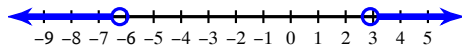
397)  $k < -\frac{5}{3}$  or  $k > \frac{5}{3}$  :

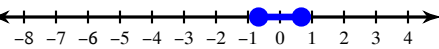
398)  $-6 < m < \frac{37}{3}$  :

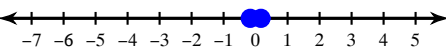


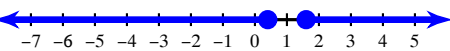
399)  $n \geq \frac{5}{2}$  or  $n \leq -\frac{5}{2}$ : 

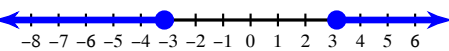
400)  $m \geq \frac{43}{10}$  or  $m \leq -\frac{43}{10}$ : 

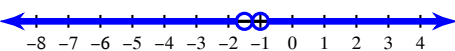
401)  $k > \frac{29}{10}$  or  $k < -\frac{187}{30}$ : 

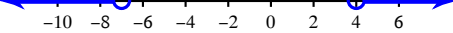
402)  $-\frac{2}{3} \leq r \leq \frac{2}{3}$ : 

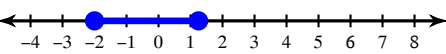
403)  $-\frac{1}{6} \leq p \leq \frac{1}{6}$ : 

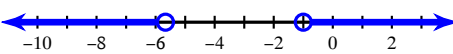
404)  $m \geq \frac{8}{5}$  or  $m \leq \frac{2}{5}$ : 

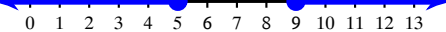
405)  $x \leq -\frac{22}{7}$  or  $x \geq \frac{22}{7}$ : 

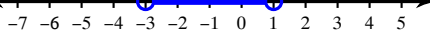
406)  $x > -1$  or  $x < -\frac{3}{2}$ : 

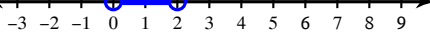
407)  $k > 4$  or  $k < -7$ : 

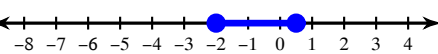
408)  $-2 \leq v \leq \frac{5}{4}$ : 

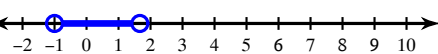
409)  $r > -1$  or  $r < -\frac{17}{3}$ : 

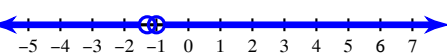
410)  $b \geq 9$  or  $b \leq 5$ : 

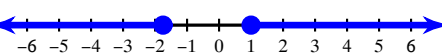
411)  $-3 < x < 1$ : 

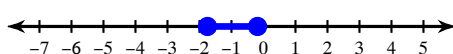
412)  $0 < b < 2$ : 

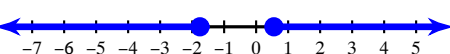
413)  $-2 \leq x \leq \frac{1}{2}$ : 

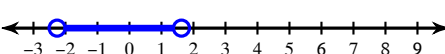
414)  $-1 < v < \frac{5}{3}$ : 

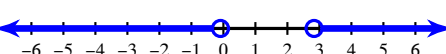
415)  $x > -1$  or  $x < -\frac{9}{7}$ : 

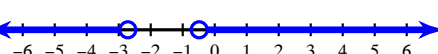
416)  $b \geq 1$  or  $b \leq -\frac{7}{4}$ : 

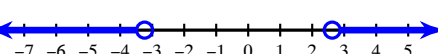
417)  $-\frac{7}{4} \leq k \leq -\frac{23}{124}$ : 

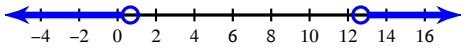
418)  $x \leq -\frac{79}{45}$  or  $x \geq \frac{5}{9}$ : 

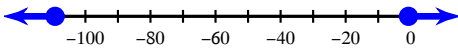
419)  $-\frac{199}{88} < x < \frac{13}{8}$ : 

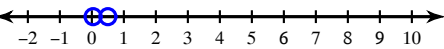
420)  $n > \frac{17}{6}$  or  $n < -\frac{19}{210}$ : 

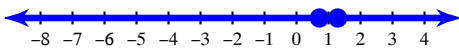
421)  $x < -\frac{19}{7}$  or  $x > -\frac{17}{35}$ : 

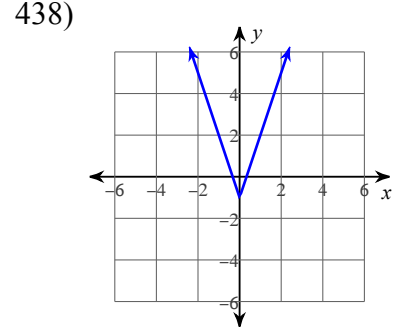
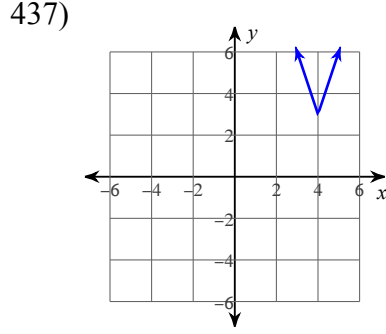
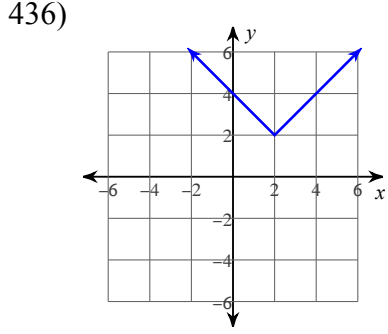
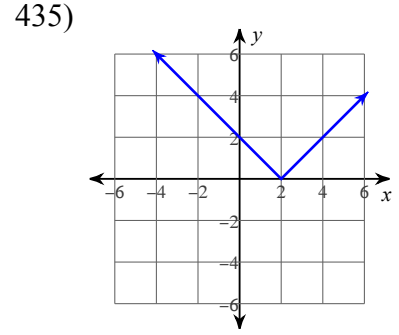
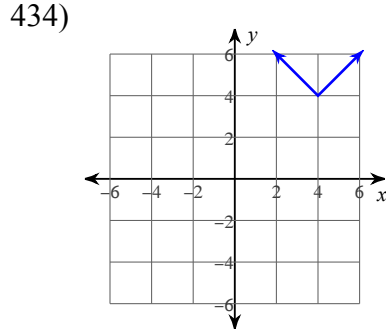
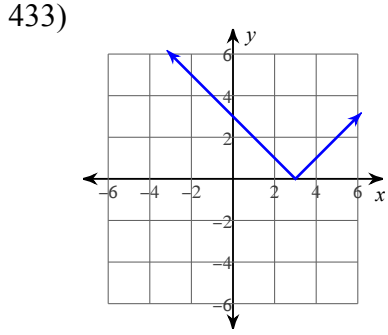
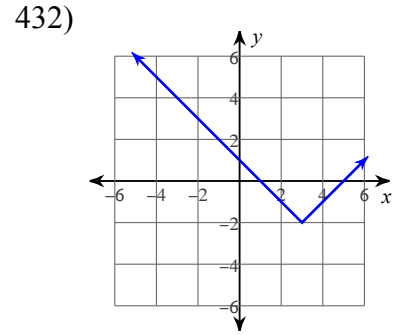
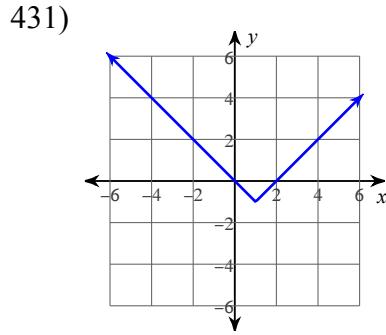
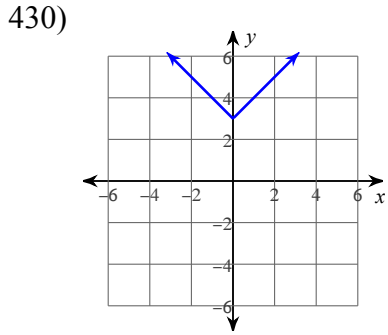
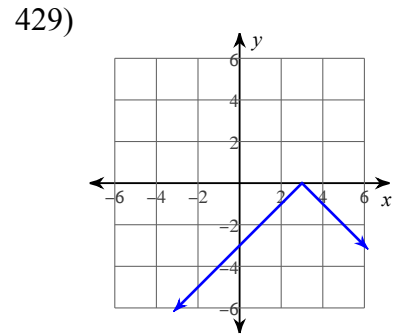
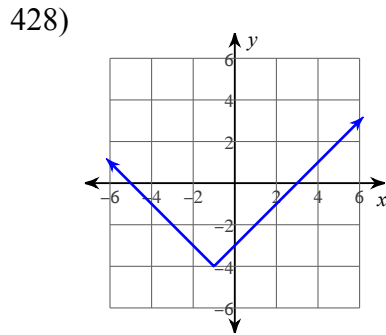
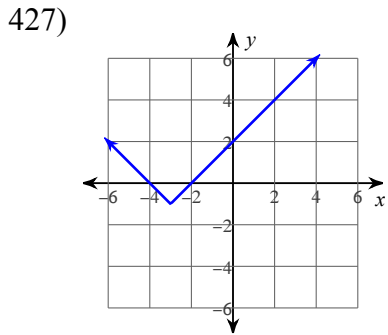
422)  $r > \frac{21}{8}$  or  $r < -\frac{1269}{392}$ : 

423)  $n < \frac{2}{3}$  or  $n > \frac{38}{3}$  : 

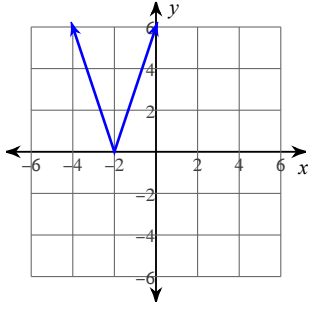
424)  $r \geq -\frac{7}{10}$  or  $r \leq -\frac{1093}{10}$  : 

425)  $\frac{1}{26} < x < \frac{1}{2}$  : 

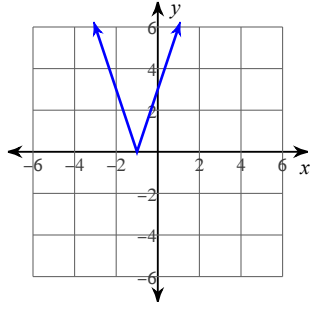
426)  $x \geq \frac{9}{7}$  or  $x \leq \frac{5}{7}$  : 



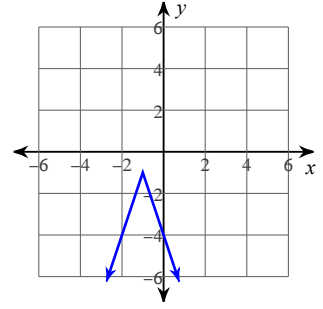
439)



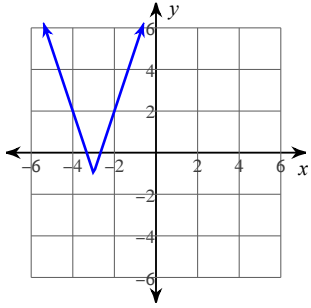
440)



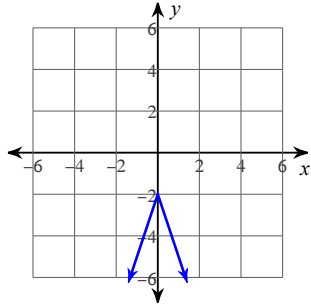
441)



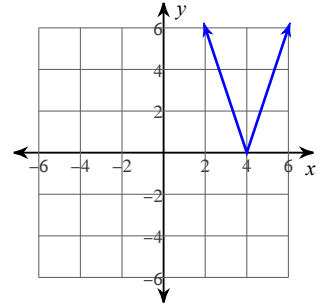
442)



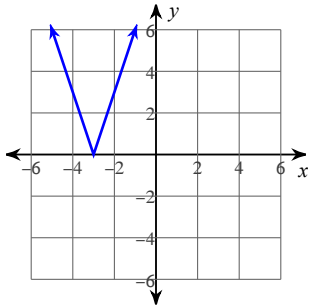
443)



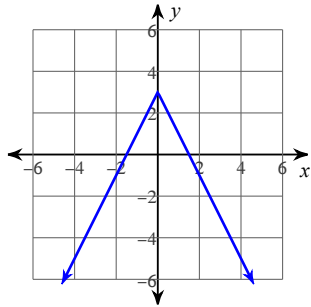
444)



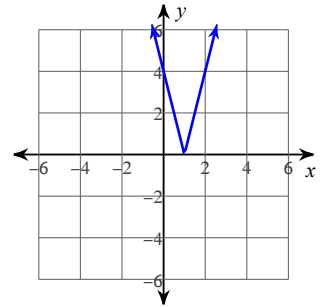
445)



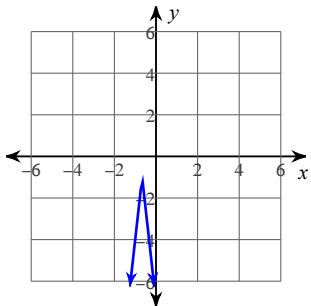
446)



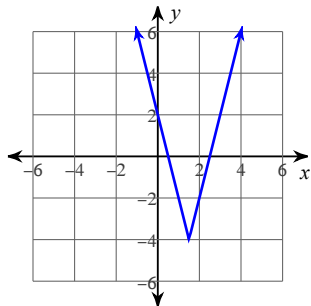
447)



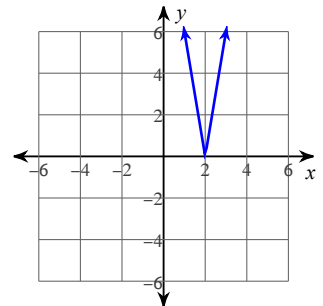
448)



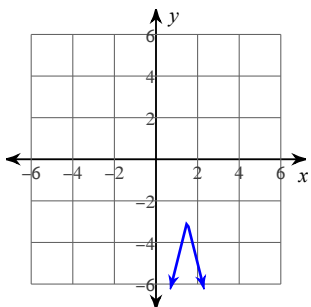
449)



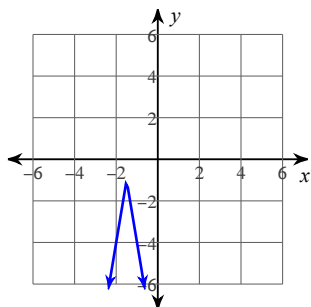
450)



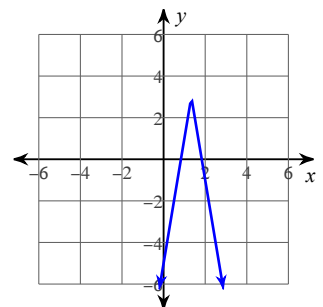
451)



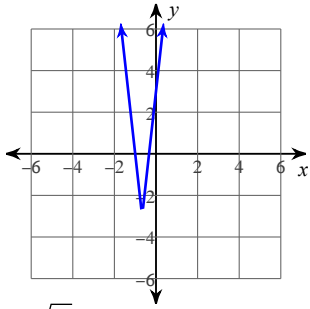
452)



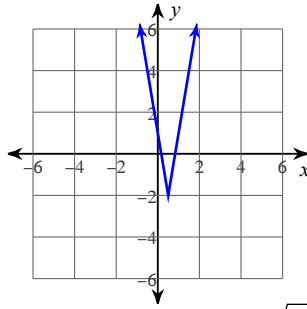
453)



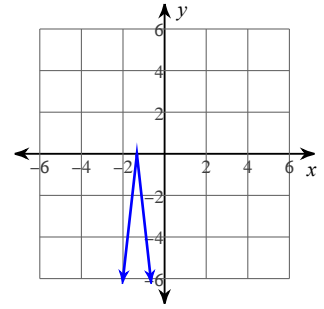
454)



455)



456)



457)  $2\sqrt{2}$

458) 5

459)  $2\sqrt{17}$

460) 10

461)  $2\sqrt{5}$

462)  $2\sqrt{41}$

463)  $4\sqrt{5}$

464)  $2\sqrt{34}$

465) 1

466)  $\sqrt{74}$

467)  $2\sqrt{10}$

468)  $9\sqrt{2}$

469)  $\sqrt{41}$

470)  $2\sqrt{13}$

471)  $\sqrt{2}$

472)  $2\sqrt{26}$

473)  $\sqrt{61}$

474)  $\sqrt{37}$

475)  $2\sqrt{5}$

476)  $3\sqrt{13}$

477)  $\frac{1}{a-1}$ ;  $\{1, -5\}$

478)  $\frac{9}{5a+6}$ ;  $\left\{-\frac{6}{5}\right\}$

479)  $\frac{5r+4}{2}$ ;  $\{0\}$

480)  $\frac{1}{10}$ ;  $\{-6\}$

481)  $\frac{5n+6}{3n}$ ;  $\{0\}$

482)  $\frac{5x+7}{6x}$ ;  $\{0\}$

483)  $\frac{3r-7}{7r}$ ;  $\{0\}$

484)  $x-6$ ;  $\{-8\}$

485)  $\frac{7a+4}{8}$ ;  $\{0\}$

486)  $7b$ ;  $\{4\}$

487)  $\frac{1}{3k-8}$ ;  $\left\{2, \frac{8}{3}\right\}$

488)  $\frac{1}{7r+1}$ ;  $\left\{-4, -\frac{1}{7}\right\}$

489)  $\frac{10}{5p+9}$ ;  $\left\{0, -\frac{9}{5}\right\}$

490)  $\frac{2(v+2)}{7}$ ; No excluded values.

491)  $\frac{5x+3}{5x^2}$ ;  $\{0\}$

492)  $\frac{5}{2(n+2)}$ ;  $\{-2\}$

493)  $5n$ ;  $\{2\}$

494)  $\frac{5m-9}{2}$ ; No excluded values.

495)  $\frac{6a^2}{5a+4}$ ;  $\left\{0, -\frac{4}{5}\right\}$

496)  $\frac{7n}{5(n-1)}$ ;  $\{1\}$

497)  $\frac{1}{3}$ ;  $\{8\}$

498)  $\frac{10r}{5r-2}$ ;  $\left\{\frac{2}{5}, -10\right\}$

499)  $\frac{5k-6}{2k-1}$ ;  $\left\{\frac{1}{2}\right\}$

500)  $\frac{9p}{7p-10}$ ;  $\left\{4, \frac{10}{7}\right\}$

501)  $\frac{3r-4}{2(r-2)}$ ;  $\{2\}$

502)  $\frac{7n+3}{3}$ ;  $\{10\}$

503)  $\frac{5x+1}{2x-1}$ ;  $\left\{2, \frac{1}{2}\right\}$

504)  $\frac{m+2}{-m+5}$ ;  $\{8, 5\}$

505)  $\frac{5(k-2)}{8k^2}$ ;  $\{0, 3\}$

506)  $\frac{4n}{n+4}$ ;  $\{-10, -4\}$

507)  $\frac{6(n-5)}{2n+3}$ ;  $\left\{0, 5, -\frac{3}{2}\right\}$

508)  $\frac{7(b-1)}{7b-8}$ ;  $\left\{1, \frac{8}{7}\right\}$

509)  $\frac{2}{r(r-1)}$ ;  $\{0, 1, -8\}$

510)  $\frac{5b+6}{(5b-4)(b+2)}$ ;  $\left\{0, \frac{4}{5}, -2\right\}$

511)  $\frac{3b+4}{3(b-1)}$ ;  $\{0, 1, -7\}$

512)  $\frac{3n(n+1)}{3n+5}$ ;  $\left\{4, -\frac{5}{3}\right\}$

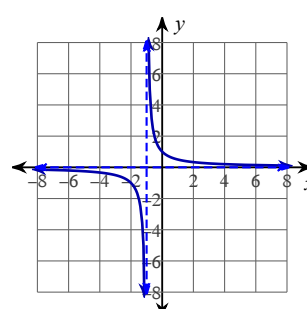
513)  $\frac{3(7v-8)}{7(v-2)}$ ;  $\{0, 5, 2\}$

514)  $\frac{x(7x+5)}{5(x+1)}$ ;  $\{9, -1\}$

515)  $\frac{5k+6}{5(k+2)}$ ;  $\{9, -2\}$

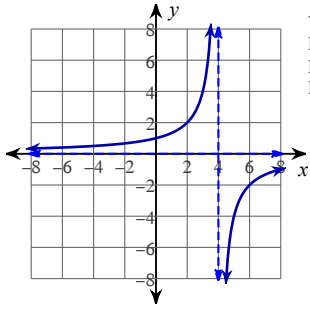
516)  $\frac{2n+7}{2(3n-4)}$ ;  $\left\{1, \frac{4}{3}\right\}$

517)



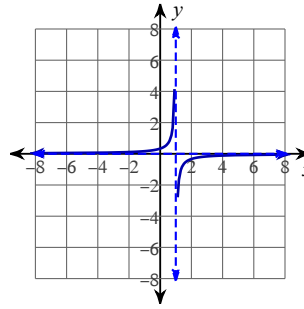
Vertical Asym.:  $x = -1$   
 Holes: None  
 Horz. Asym.:  $y = 0$   
 Domain:  
 All reals except  $-1$

518)



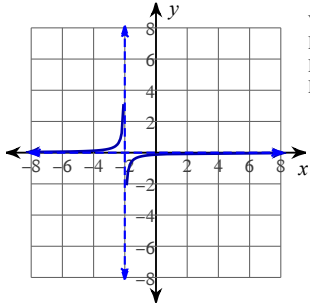
Vertical Asym.:  $x = 4$   
 Holes: None  
 Horiz. Asym.:  $y = 0$   
 Domain:  
 All reals except 4

519)



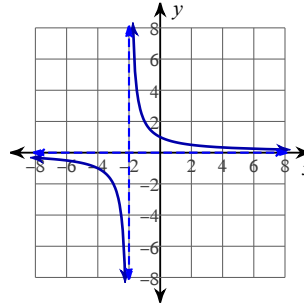
Vertical Asym.:  $x = 1$   
 Holes: None  
 Horiz. Asym.:  $y = 0$   
 Domain:  
 All reals except 1

520)



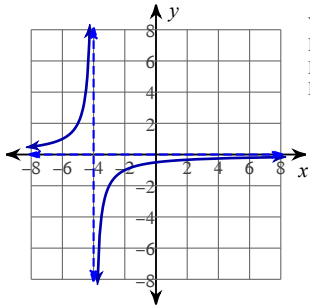
Vertical Asym.:  $x = -2$   
 Holes: None  
 Horiz. Asym.:  $y = 0$   
 Domain:  
 All reals except -2

521)



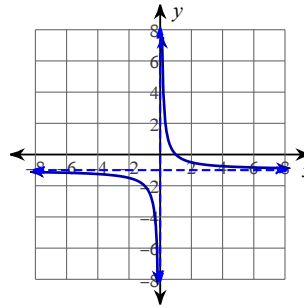
Vertical Asym.:  $x = -2$   
 Holes: None  
 Horiz. Asym.:  $y = 0$   
 Domain:  
 All reals except -2

522)



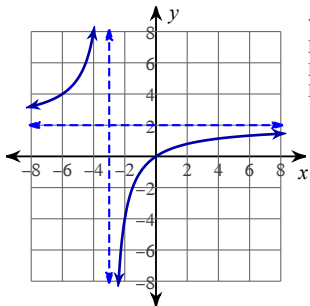
Vertical Asym.:  $x = -4$   
 Holes: None  
 Horiz. Asym.:  $y = 0$   
 Domain:  
 All reals except -4

523)



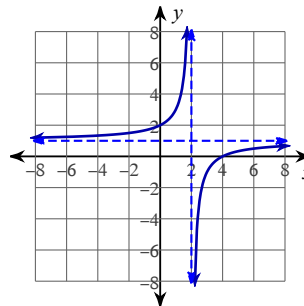
Vertical Asym.:  $x = 0$   
 Holes: None  
 Horiz. Asym.:  $y = -1$   
 Domain:  
 All reals except 0

524)



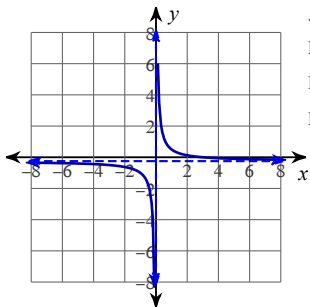
Vertical Asym.:  $x = -3$   
 Holes: None  
 Horiz. Asym.:  $y = 2$   
 Domain:  
 All reals except -3

525)



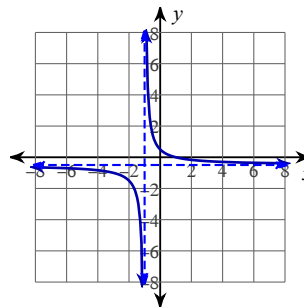
Vertical Asym.:  $x = 2$   
 Holes: None  
 Horiz. Asym.:  $y = 1$   
 Domain:  
 All reals except 2

526)



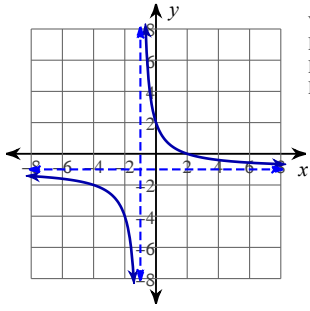
Vertical Asym.:  $x = 0$   
 Holes: None  
 Horiz. Asym.:  $y = -\frac{1}{4}$   
 Domain:  
 All reals except 0

527)



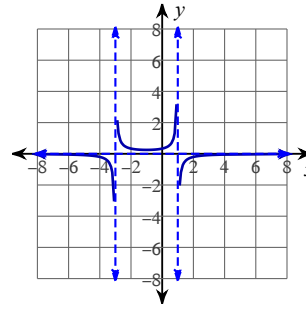
Vertical Asym.:  $x = -1$   
 Holes: None  
 Horiz. Asym.:  $y = -\frac{1}{2}$   
 Domain:  
 All reals except -1

528)



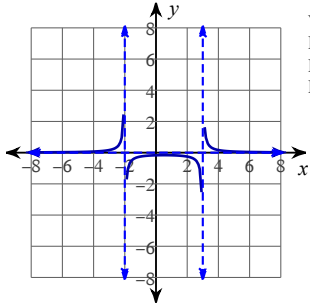
Vertical Asym.:  $x = -1$   
 Holes: None  
 Horz. Asym.:  $y = -1$   
 Domain:  
 All reals except  $-1$

529)



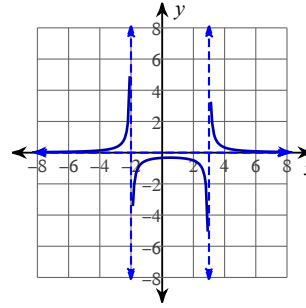
Vertical Asym.:  $x = 1, x = -3$   
 Holes: None  
 Horz. Asym.:  $y = 0$   
 Domain:  
 All reals except  $-3, 1$

530)



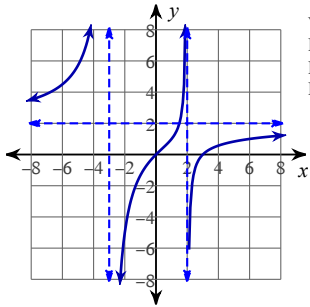
Vertical Asym.:  $x = 3, x = -2$   
 Holes: None  
 Horz. Asym.:  $y = 0$   
 Domain:  
 All reals except  $-2, 3$

531)



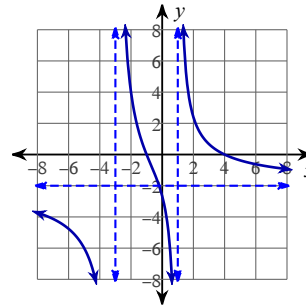
Vertical Asym.:  $x = 3, x = -2$   
 Holes: None  
 Horz. Asym.:  $y = 0$   
 Domain:  
 All reals except  $-2, 3$

532)



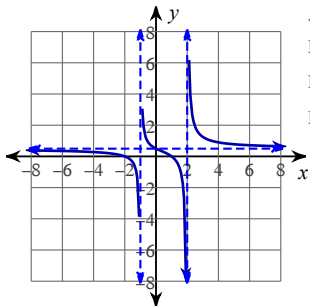
Vertical Asym.:  $x = 2, x = -3$   
 Holes: None  
 Horz. Asym.:  $y = 2$   
 Domain:  
 All reals except  $-3, 2$

533)



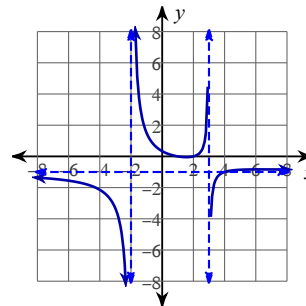
Vertical Asym.:  $x = 1, x = -3$   
 Holes: None  
 Horz. Asym.:  $y = -2$   
 Domain:  
 All reals except  $-3, 1$

534)



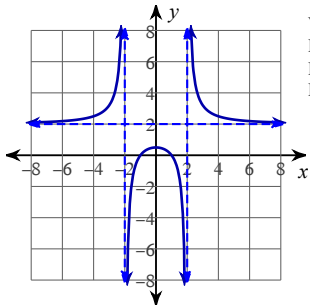
Vertical Asym.:  $x = 2, x = -1$   
 Holes: None  
 Horz. Asym.:  $y = \frac{1}{2}$   
 Domain:  
 All reals except  $-1, 2$

535)



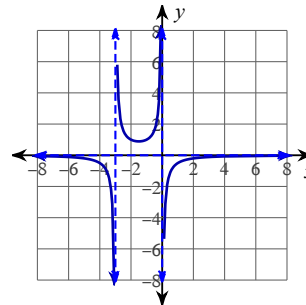
Vertical Asym.:  $x = 3, x = -2$   
 Holes: None  
 Horz. Asym.:  $y = -1$   
 Domain:  
 All reals except  $-2, 3$

536)



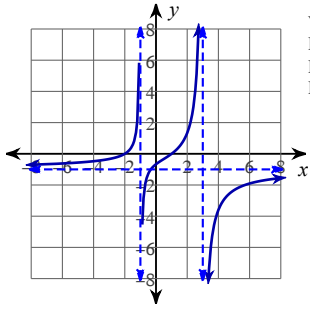
Vertical Asym.:  $x = 2, x = -2$   
 Holes: None  
 Horz. Asym.:  $y = 2$   
 Domain:  
 All reals except  $-2, 2$

537)



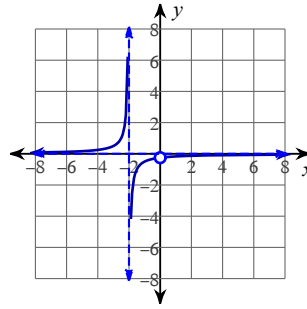
Vertical Asym.:  $x = 0, x = -3$   
 Holes: None  
 Horz. Asym.:  $y = 0$   
 Domain:  
 All reals except  $-3, 0$

538)



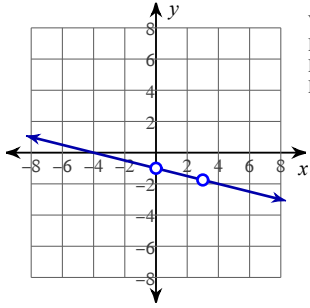
Vertical Asym.:  $x = 3, x = -1$   
 Holes: None  
 Horz. Asym.:  $y = -1$   
 Domain:  
 All reals except  $-1, 3$

539)



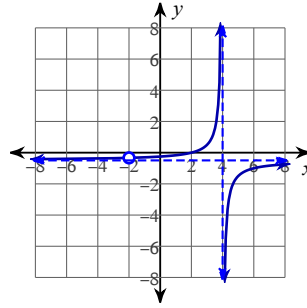
Vertical Asym.:  $x = -2$   
 Holes:  $x = 0$   
 Horz. Asym.:  $y = 0$   
 Domain:  
 All reals except  $-2, 0$

540)



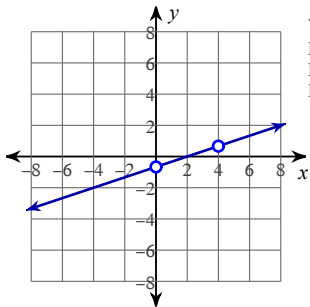
Vertical Asym.: None  
 Holes:  $x = 0, x = 3$   
 Horz. Asym.: None  
 Domain:  
 All reals except  $0, 3$

541)



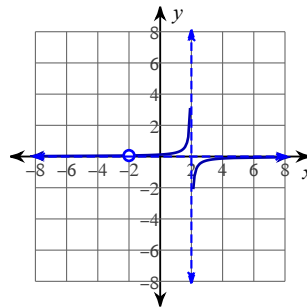
Vertical Asym.:  $x = 4$   
 Holes:  $x = -2$   
 Horz. Asym.:  $y = -\frac{1}{2}$   
 Domain:  
 All reals except  $-2, 4$

542)



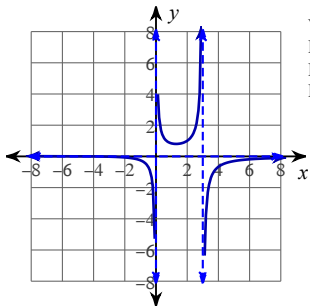
Vertical Asym.: None  
 Holes:  $x = 0, x = 4$   
 Horz. Asym.: None  
 Domain:  
 All reals except  $0, 4$

543)



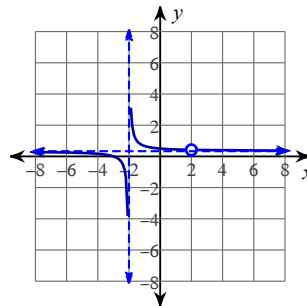
Vertical Asym.:  $x = 2$   
 Holes:  $x = -2$   
 Horz. Asym.:  $y = 0$   
 Domain:  
 All reals except  $-2, 2$

544)



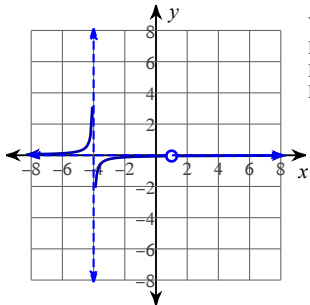
Vertical Asym.:  $x = 0, x = 3$   
 Holes: None  
 Horz. Asym.:  $y = 0$   
 Domain:  
 All reals except  $0, 3$

545)



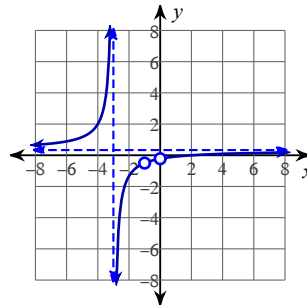
Vertical Asym.:  $x = -2$   
 Holes:  $x = 2$   
 Horz. Asym.:  $y = \frac{1}{3}$   
 Domain:  
 All reals except  $-2, 2$

546)



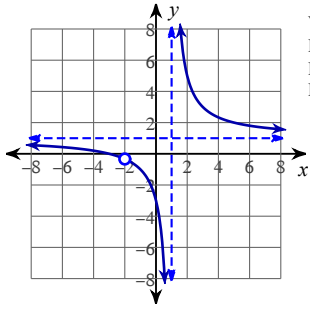
Vertical Asym.:  $x = -4$   
 Holes:  $x = 1$   
 Horz. Asym.:  $y = 0$   
 Domain:  
 All reals except  $-4, 1$

547)



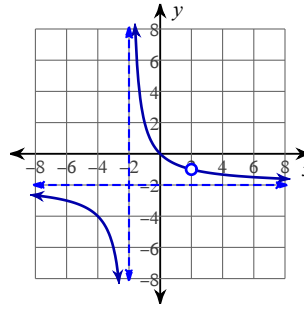
Vertical Asym.:  $x = -3$   
 Holes:  $x = -1, x = 0$   
 Horz. Asym.:  $y = \frac{1}{3}$   
 Domain:  
 All reals except  $-3, -1, 0$

548)



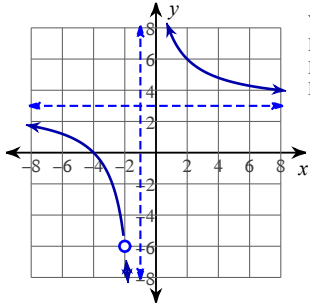
Vertical Asym.:  $x = 1$   
 Holes:  $x = -2$   
 Horz. Asym.:  $y = 1$   
 Domain:  
 All reals except  $-2, 1$

549)



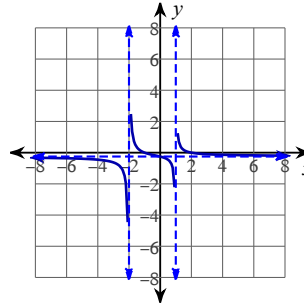
Vertical Asym.:  $x = -2$   
 Holes:  $x = 2$   
 Horz. Asym.:  $y = -2$   
 Domain:  
 All reals except  $-2, 2$

550)



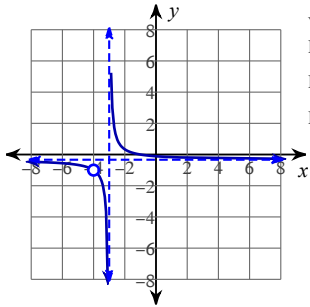
Vertical Asym.:  $x = -1$   
 Holes:  $x = -2$   
 Horz. Asym.:  $y = 3$   
 Domain:  
 All reals except  $-2, -1$

551)



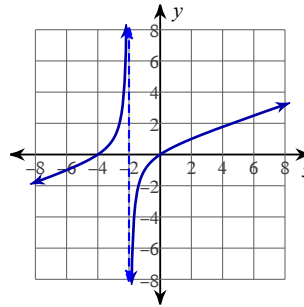
Vertical Asym.:  $x = 1, x = -2$   
 Holes: None  
 Horz. Asym.:  $y = -\frac{1}{4}$   
 Domain:  
 All reals except  $-2, 1$

552)



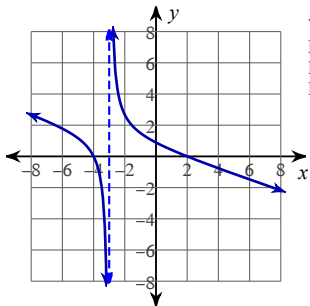
Vertical Asym.:  $x = -3$   
 Holes:  $x = -4$   
 Horz. Asym.:  $y = -\frac{1}{3}$   
 Domain:  
 All reals except  $-4, -3$

553)



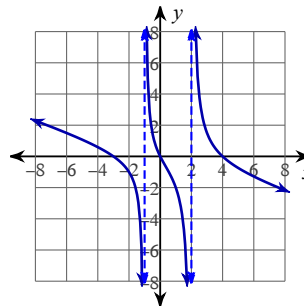
Vertical Asym.:  $x = -2$   
 Holes: None  
 Horz. Asym.: None  
 Domain:  
 All reals except  $-2$

554)



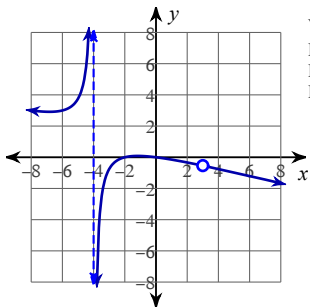
Vertical Asym.:  $x = -3$   
 Holes: None  
 Horz. Asym.: None  
 Domain:  
 All reals except  $-3$

555)



Vertical Asym.:  $x = 2, x = -1$   
 Holes: None  
 Horz. Asym.: None  
 Domain:  
 All reals except  $-1, 2$

556)



Vertical Asym.:  $x = -4$   
 Holes:  $x = 3$   
 Horz. Asym.: None  
 Domain:  
 All reals except  $-4, 3$