Name: _____ Class:___ Date: _____

1 Find the first three terms, in ascending powers, of the product. (Do not compute the entire product!)

$$(1 + 4x + 2x^2 + 2x^3)(3 + 3x + 5x^2)$$

a. $32x^3 + 16x^4 + 10x^5$

b. $16x^3 + 10x^4 + 4x^5$

c. $16x^3 + 5x^4 + 10x^5$

d. $32x^5 + 50x^4 + 64x^3$

2 Use the formula for the cube of a binomial to expand the product.

$$(1 + 5x)^3$$

3 Use the formula for the cube of a binomial to expand the product.

$$(1 + x^2)^3$$

4 Factor completely.

$$8x^3y^6 + 27$$

Select a correct answer.

a. $(4xy^2 + 12)(9x^3y^6 - 4xy^2 + 4)$

b. $4x^3 + 6x^2 + 9x + 7$

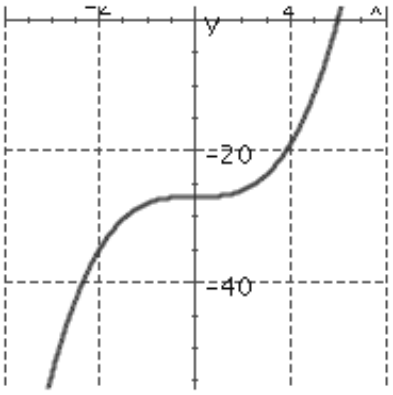
c. $(2xy^6 + 6)(4x^3y^{12} - 4xy^4 + 9)$

d. $(2xy^2 + 3)(4x^2y^4 - 6xy^2 + 9)$

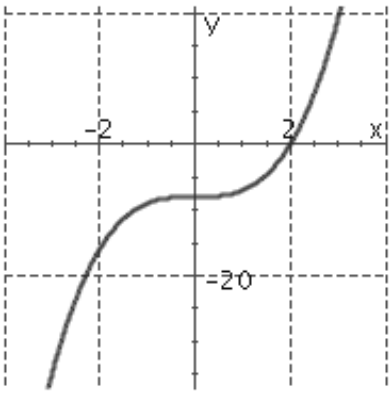
5 Graph the cubic (third – degree) polynomial.

$$y = x^3 - 27$$

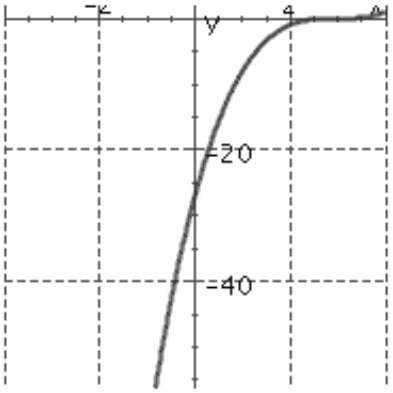
a.



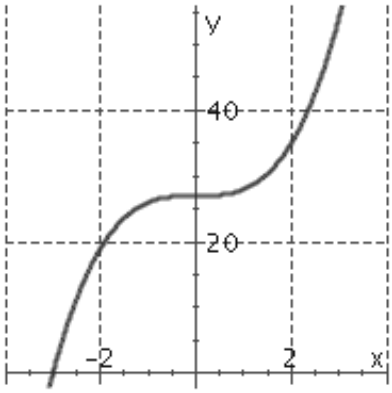
c.



b.



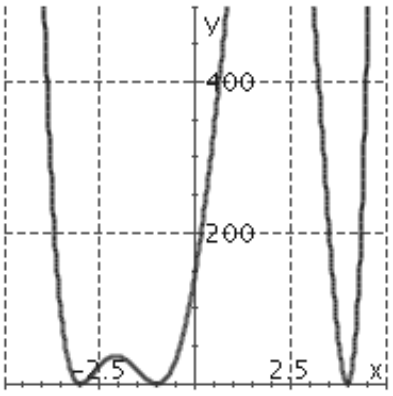
d.



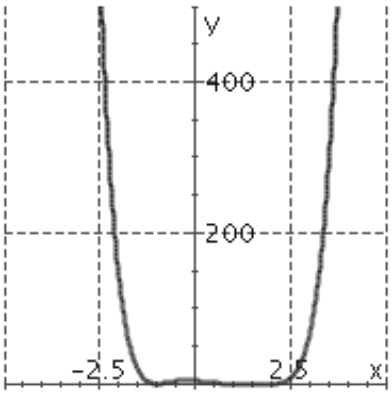
6 Sketch a rough graph of the polynomial function by hand.

$$q(x) = (x - 4)^2 (x + 1)^2 (x + 3)^2$$

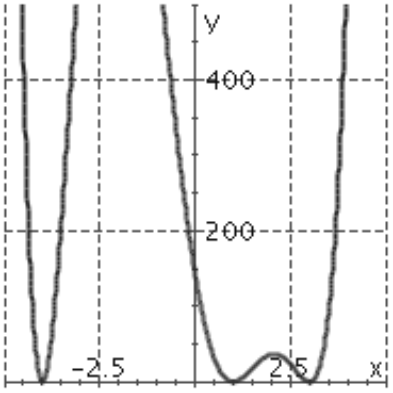
a.



c.

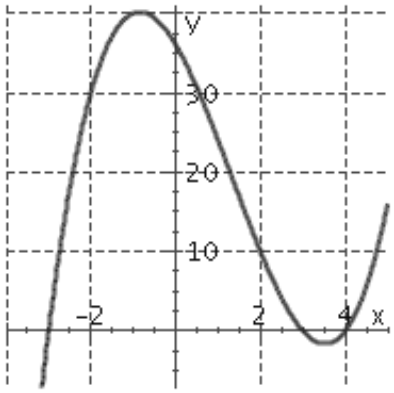


b.



Name: _____ Class:___ Date: _____

7 Find the equation in factored form of the polynomial graphed below.



a. $y = (x + 4)(x + 3)(x + 3)$

b. $y = (x + 4)(x + 1)(x + 2)$

c. $y = (x - 4)(x - 3)(x + 3)$

d. $y = (x - 4)(x - 1)(x - 2)$

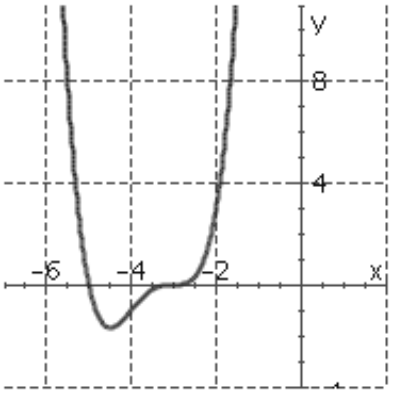
8 Given that

$$f(x) = x^4 + 2x^3$$

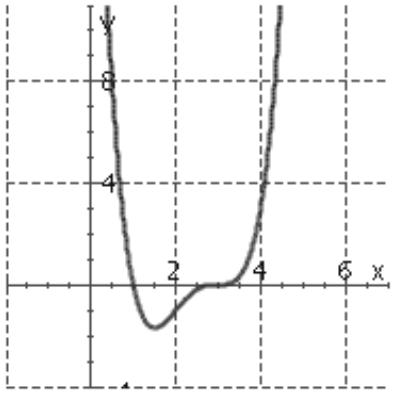
Graph the function.

$$y = f(x + 3)$$

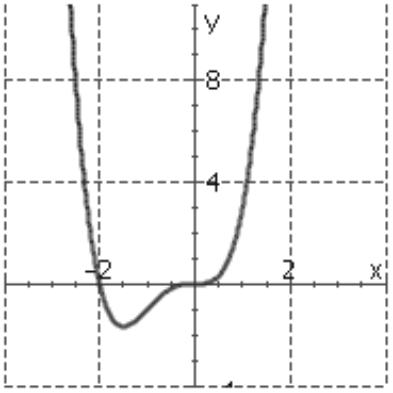
a.



c.



b.

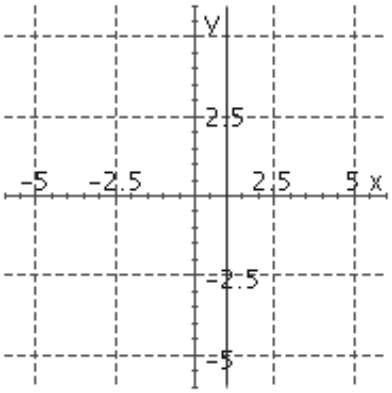


Name: _____ Class:____ Date: _____

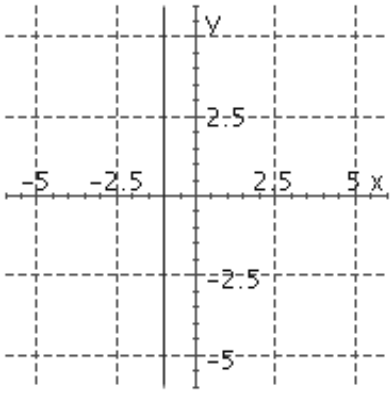
9 Select the correct vertical asymptote(s) for the following function

$$y = \frac{1}{x + 1}$$

a.



b.

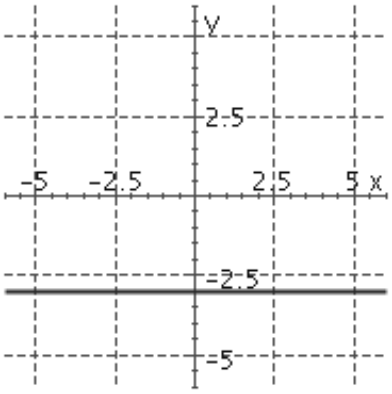


Name: _____ Class:___ Date: _____

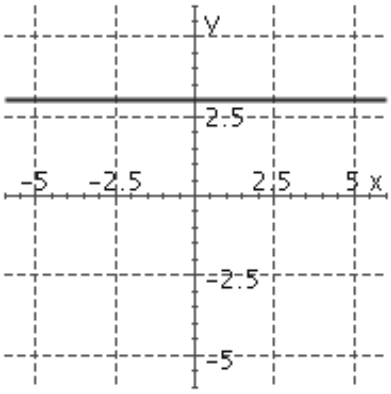
10 Select the correct horizontal and vertical asymptotes for the following function

$$y = \frac{3(x^2 - 1)}{x^2 + 3}$$

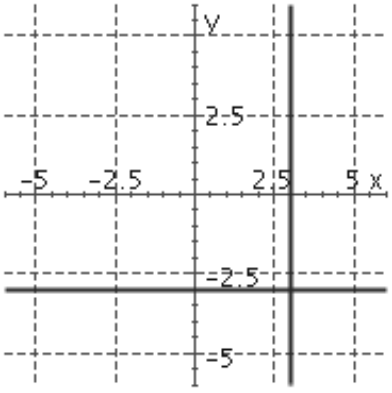
a.



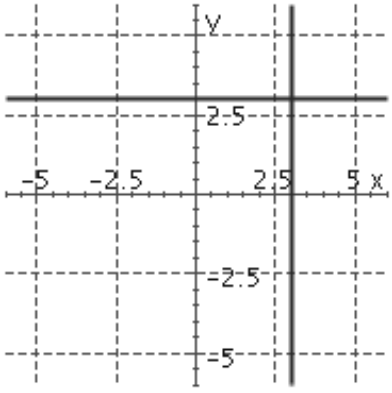
c.



b.



d.

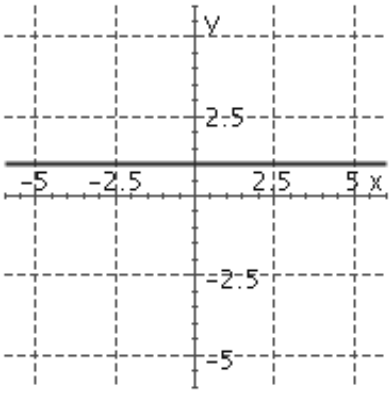


Name: _____ Class:___ Date: _____

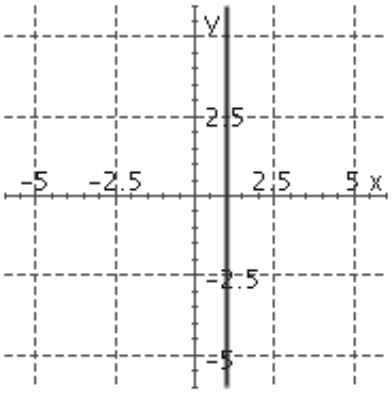
11 Select the correct horizontal and vertical asymptotes for the following function

$$y = \frac{x^2 + 5}{x^2 + 1}$$

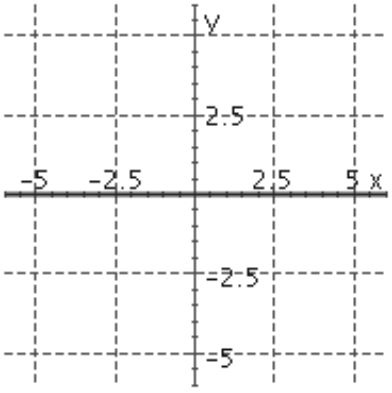
a.



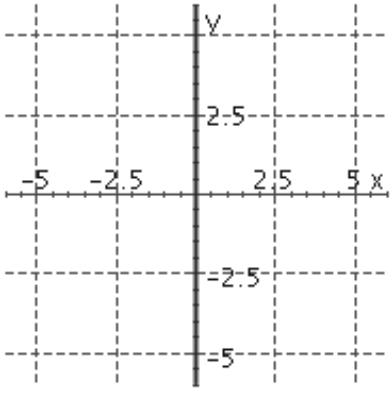
c.



b.

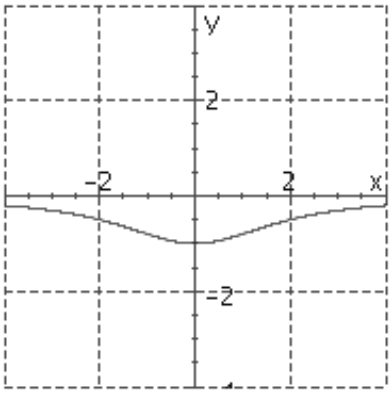


d.

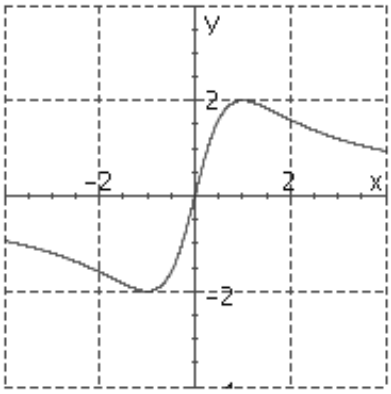


12 Graph the curve known as Newton's Serpentine: $y = \dfrac{4x}{x^2 + 1}$

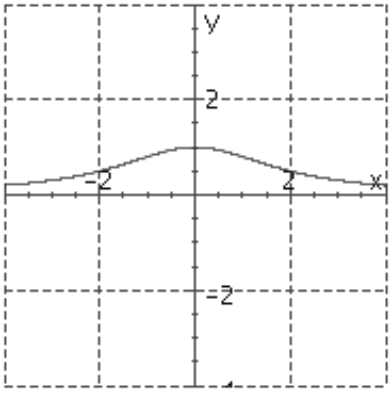
a.



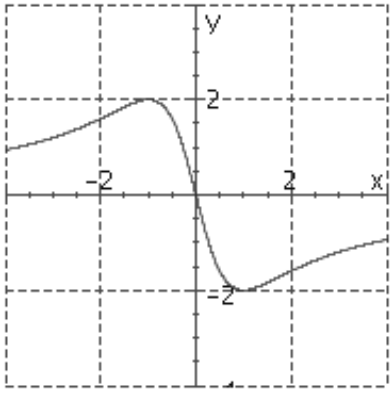
c.



b.



d.



ANSWER KEY

Ch 8 annex

1. a **2.** $1+15x+75x^2+125.0000x^3$ **3.** $1+3x^2+3x^4+x^6$ **4.** d **5.** a **6.** a
7. c **8.** a **9.** b **10.** c **11.** a **12.** c