

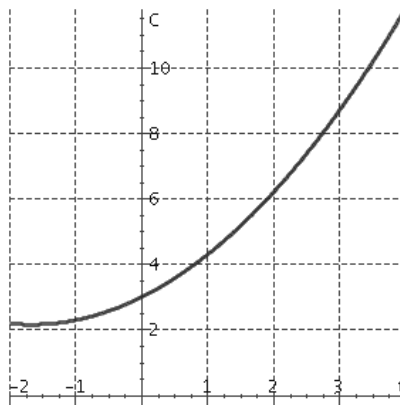
Name _____ Class _____ Date _____

1 Does the table define the second variable as a function of the first variable?

x	y
0	6
1	10
3	18
5	26
7	34

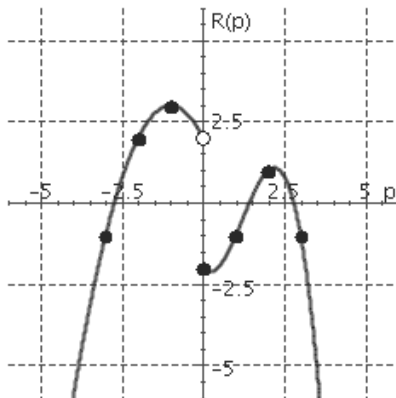
- a. It is not a function b. $y = 4x - 24$ c. $y = 4x + 6$

2 The graph shows the graph of C as a function of t . C stands for the number of students (in thousands) at State University who consider themselves computer literate, and t represents time, measured in years since 1990. When did 4300 students consider themselves computer literate?



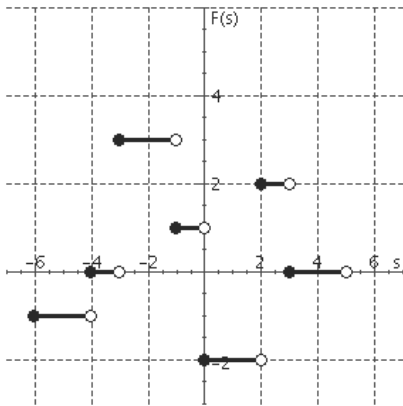
- a. 1989 b. 1991 c. 1992

3 Use the graph to find $R(0)$.



- a. $R(0) = -1$ b. $R(0) = 2$ c. $R(0) = -2$ d. $R(0) = 0$

4 Use the graph to find $F(2)$.



a. $F(2) = -2$

b. $F(2) = -1$

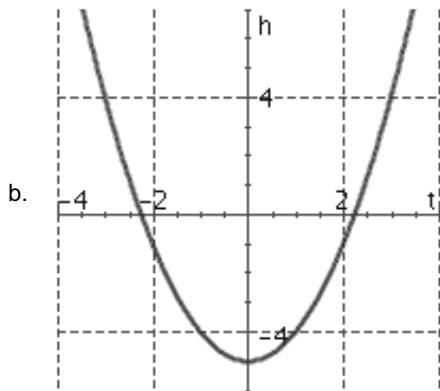
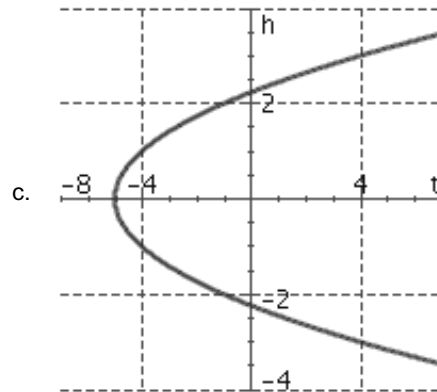
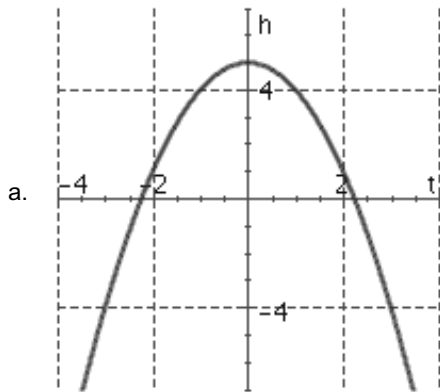
c. $F(2) = 3$

d. $F(2) = 0$

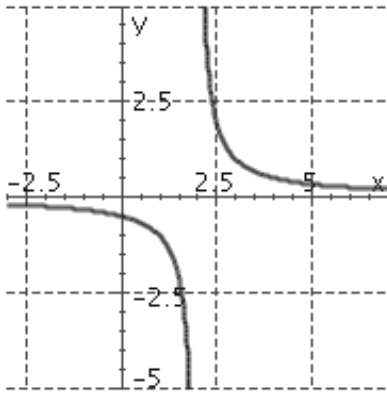
e. $F(2) = 2$

5 Sketch the graph of the quadratic function.

$$h(t) = t^2 - 5$$



6 The following graph is a variation of one of the basic graphs listed below. Identify its basic graph.



a. $f(x) = \frac{1}{x}$

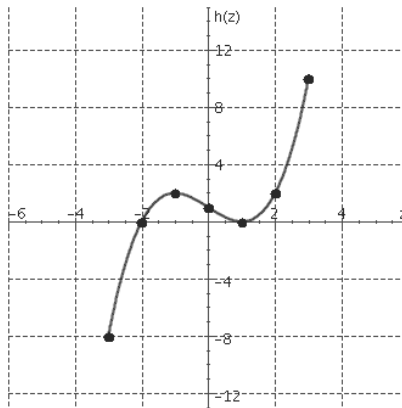
b. $f(x) = x^2$

c. $f(x) = \sqrt{x}$

d. $f(x) = x^3$

e. $f(x) = |x|$

7 Find the domain and range of the following function from its graph.



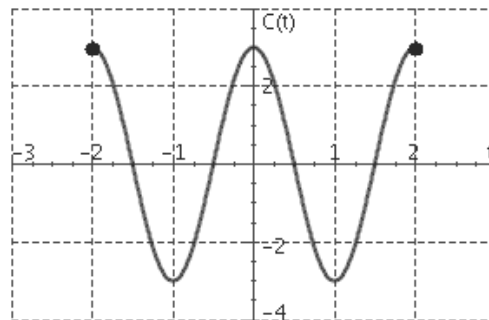
a. Domain: $[-3, 3]$

b. Range: $[-3, 3]$

c. Range: $[-8, 10]$

d. Domain: $[-8, 10]$

8 Find the domain and range of the following function from its graph.



a. Range: $[-2, 2]$

b. Range: $[-3, 3]$

c. Domain: $[-3, 3]$

d. Domain: $[-2, 2]$

9 The amount of current, I , that flows through a circuit varies inversely with the resistance, R , on the circuit. An iron with a resistance of 9 ohms draws 5.75 amps of current. What is the resistance of a toaster that draws 11.5 amps of current?

- a. 5.1 ohms b. 4.8 ohms c. 4.5 ohms d. 5.5 ohms

10 In the following problem, one quantity varies directly with the square root of the other, that is, $y = k\sqrt{x}$.

The table gives the distance, d , in miles that you can see from various heights, h , given in feet. How far can you see from an airplane flying at 22500 feet?

h	100	441	961	1681
d	11.83	24.843	36.673	48.503

- a. $d = 186.85$ miles b. $d = 171.15$ miles c. $d = 177.45$ miles d. $d = 168.85$ miles

11 A colony of bacteria starts with 470 organisms and doubles every week. How many bacteria will there be after 6 weeks?

- a. $P = 16000$ bacteria b. $P = 30080$ bacteria c. $P = 28800$ bacteria d. $P = 30720$ bacteria

12 A sum of \$2200 is invested in an account that pays 6% interest compounded annually. How much is in the account after 6 years?

- a. $A = \$3716.85$ b. $A = \$2944.10$ c. $A = \$3120.74$ d. $A = \$3939.86$

13 Before the advent of antibiotics an outbreak of cholera might spread through a city so that the number of cases doubled every 3 days. Twenty-eight cases were discovered on July 5. Write a function for the number of cases of cholera t days later.

- a. $f(t) = 3 \cdot (2)^{\frac{t}{28}}$ b. $f(t) = 28 \cdot (3)^t$ c. $f(t) = 28 \cdot (2)^{\frac{t-3}{2}}$ d. $f(t) = 28 \cdot (2)^{\frac{t}{3}}$

14 Choose the value(s) of x where $f(x) = g(x)$.

$$f(x) = 3^{x-1}, \quad g(x) = 3^x - 2$$

- a. -2 b. 0 c. 4 d. 1 e. 2 f. -4

15 Solve the equation, writing your answer as a logarithm.

$$3^x = 2$$

- a. $\log_2 \frac{1}{3}$ b. $\log_3 (-2)$ c. $\log_3 2$ d. $\log_2 3$

16 Convert the logarithmic equation to exponential form.

$$\log_{14} 196 = w$$

- a. $14^w = \frac{1}{196}$ b. $\left(\frac{1}{14}\right)^w = 196$ c. $14^w = 196$ d. $196^w = 14$

17 Simplify the expression.

$$\log_2 (\log_3 9)$$

a. $\log_6 9$

b. $\log_3 18$

c. $\log_2 27$

d. 1

18 Factor completely.

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

Select a correct answer.

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

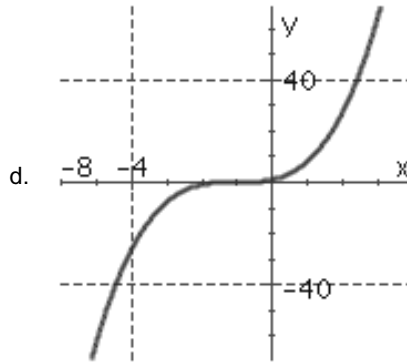
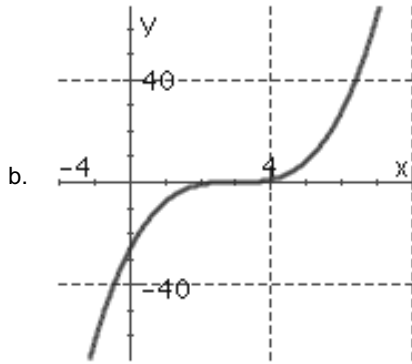
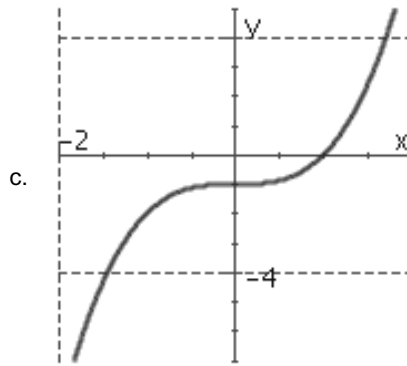
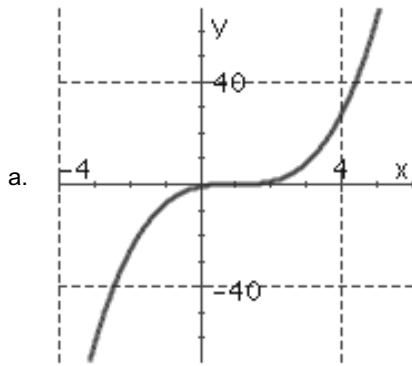
c. $(2xy^6 + 6)(4x^3y^{12} - 4xy^4 + 9)$

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

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

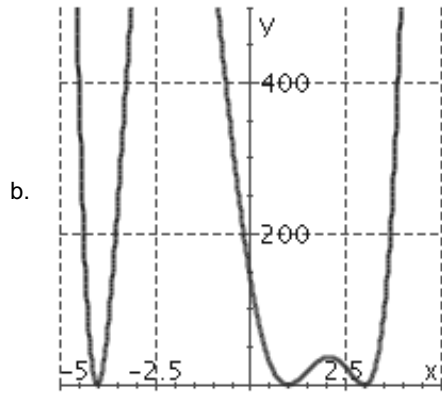
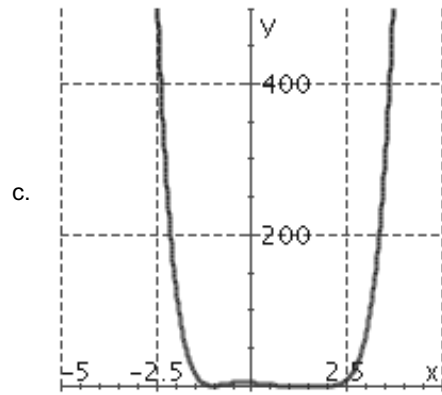
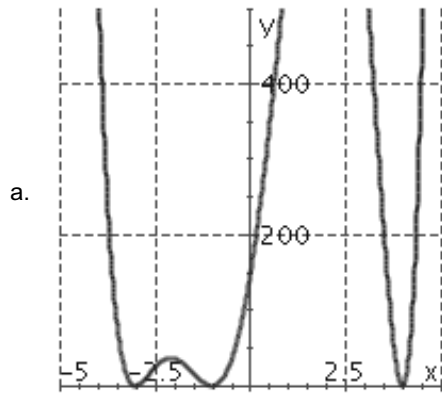
19 Use a calculator to graph the cubic polynomial.

$$y = (x - 1)^3$$

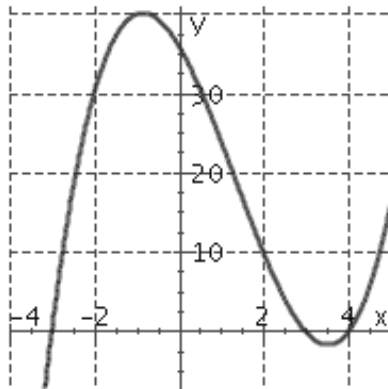


20 Sketch a rough graph of the polynomial function by hand.

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



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



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

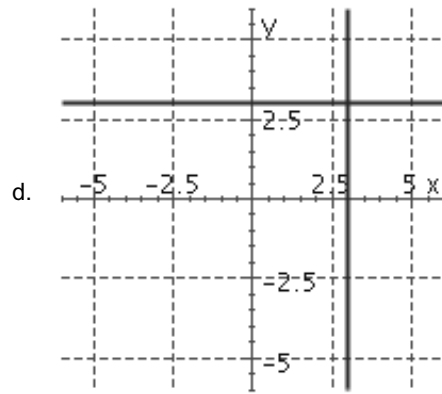
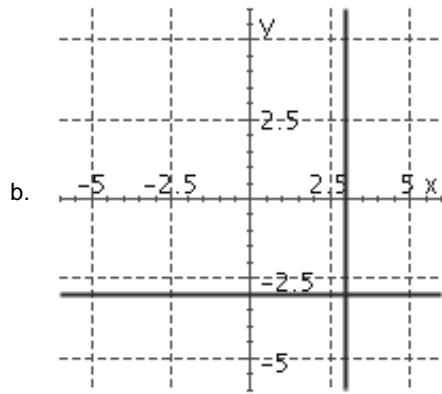
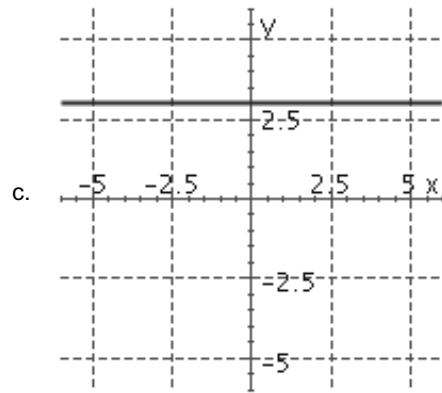
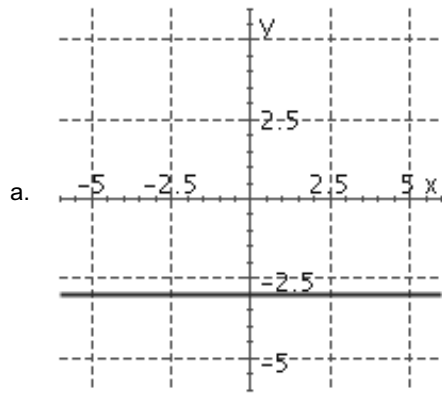
c. $y = (x - 4)(x - 3)(x + 3)$

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

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

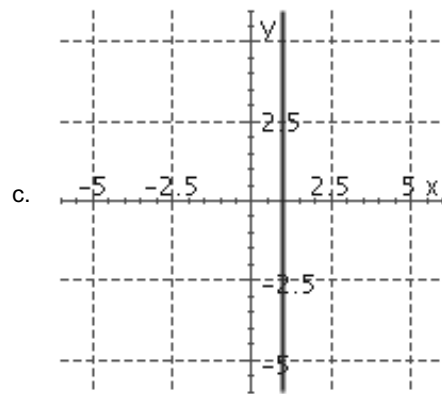
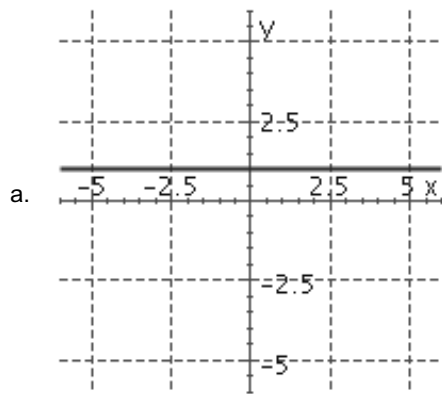
22 Select the correct horizontal and vertical asymptotes for the following function

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



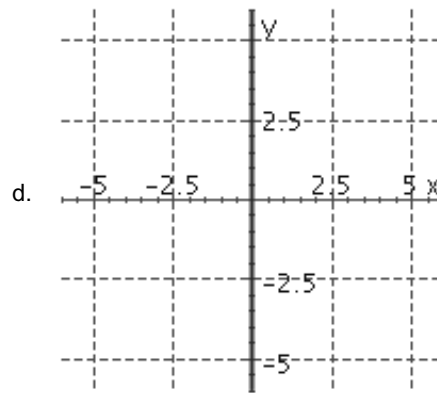
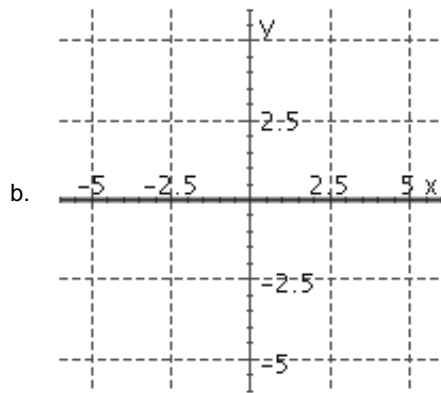
23 Select the correct horizontal and vertical asymptotes for the following function

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

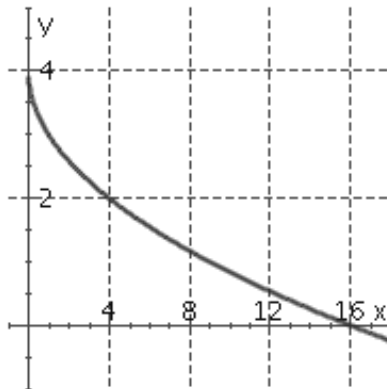


..to be continued

continuation



24 Give an equation for the function graphed.



a. $y = \sqrt{x} - 4$

b. $y = -\sqrt{x} + 4$

c. $y = -\sqrt{x} - 4$

d. $y = \sqrt{x} + 4$

25 Evaluate the function at the given algebraic expression.

$$G(s) = 4s^2 - 8s$$

$$G(5a)$$

a. $100a^2 - 40a$

b. $40a^2 - 100a$

c. $100a - 40$

d. $120 - 160a$

26 For this function compute the following expression.

$$f(x) = x^2 + 1$$

$$f(5 + 4)$$

a. 82

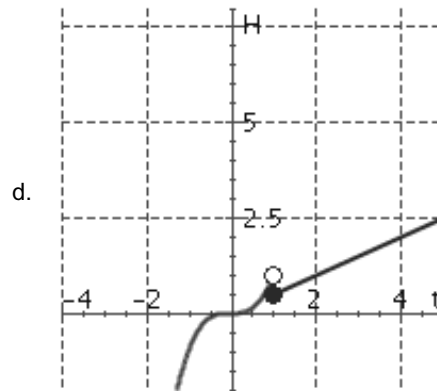
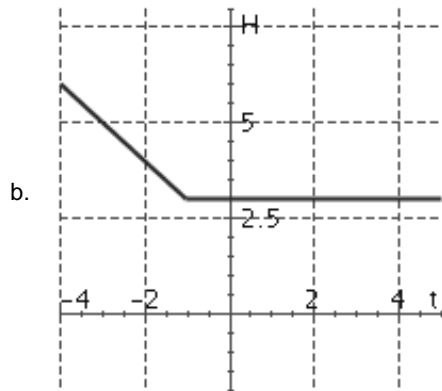
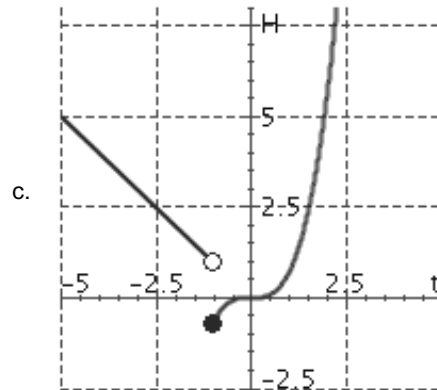
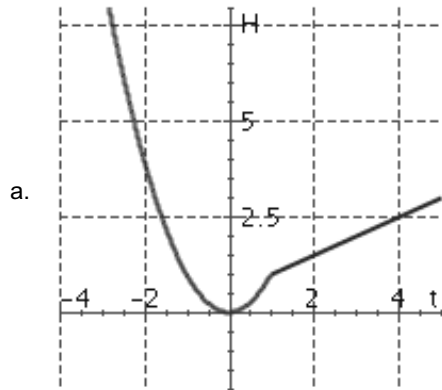
b. 78

c. 53

d. 57

27 Graph by hand the following piecewise-defined function.

$$H(t) = \begin{cases} t^2 & \text{if } t < 1 \\ \frac{1}{2}t + \frac{1}{2} & \text{if } t \geq 1 \end{cases}$$



28 If $F(t) = \frac{2}{5}t + 1$ find $F^{-1}(6)$

- a. $\frac{25}{2}$ b. $\frac{1}{10}$ c. $\frac{1}{5}$ d. $\frac{7}{30}$

29 If $f(x) = \frac{x+2}{x-3}$, find $f^{-1}(5)$

- a. $\frac{17}{4}$ b. $\frac{1}{4}$ c. $\frac{1}{3}$ d. $\frac{7}{10}$

30 Given $f(x) = x^3 + x + 2$,

find $f^{-1}(2)$.

- a. -2 b. 1 c. -3 d. 0

ANSWER KEY

Rev of FCh 5- 8

1. c	2. b	3. c	4. e	5. b	6. a	7. a,c	8. b,d	9. c	10. c
11. b	12. c	13. d	14. d	15. c	16. c	17. d	18. d	19. a	20. a
21. c	22. c	23. a	24. b	25. a	26. a	27. a	28. a	29. a	30. d