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VIDEOS (ON DEMAND)

INTERACTMATH (BLITZER COLLEGE ALGEBRA 5e)

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

Solve the equation using the quadratic formula.

1)  $x^2 - 14x + 53 = 0$

A)  $\{7 - 2i, 7 + 2i\}$

B)  $\{7 - 4i, 7 + 4i\}$

C)  $\{5, 9\}$

D)  $\{7 + 2i\}$

1) \_\_\_\_\_

Answer: A

Objective: (1.5) Solve Quadratic Equations Using the Quadratic Formula

INTERACTMATH SEC 1.5 EXE 73

**ALVAREZ VIDEO 8**

Solve the radical equation, and check all proposed solutions.

2)  $\sqrt{22x + 11} = x + 6$

A)  $\{-5\}$

B)  $\{3\}$

C)  $\{-4\}$

D)  $\{5\}$

2) \_\_\_\_\_

Answer: D

Objective: (1.6) Solve Radical Equations

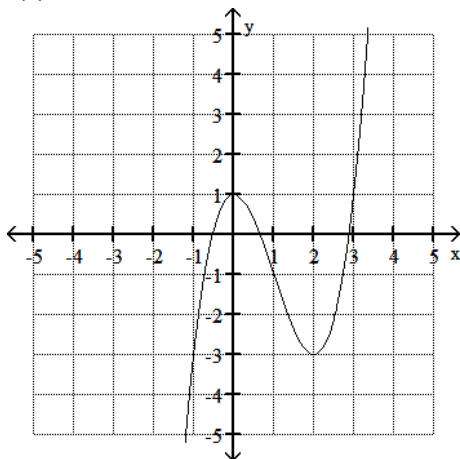
INTERACTMATH SEC 1.6 EXE 19

**ALVAREZ --VIDEO 9**

Use the graph of the given function to find any relative maxima and relative minima.

3)  $f(x) = x^3 - 3x^2 + 1$

3) \_\_\_\_\_



A) maximum: (0, 1); minimum: (2, -3)

B) no maximum or minimum

C) maximum: none; minimum: (2, -3)

D) maximum: (0, 1); minimum: none

Answer: A

Objective: (2.2) Use Graphs to Locate Relative Maxima or Minima

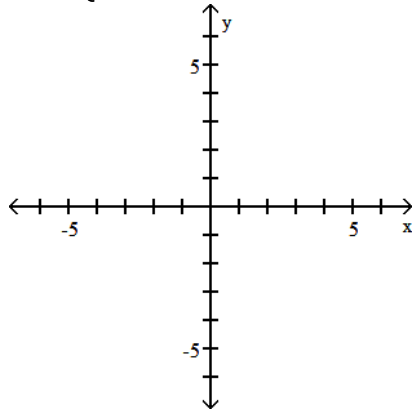
INTERACTMATH SEC 2.2 EXE 15

**ALVAREZ--VIDEO 15**

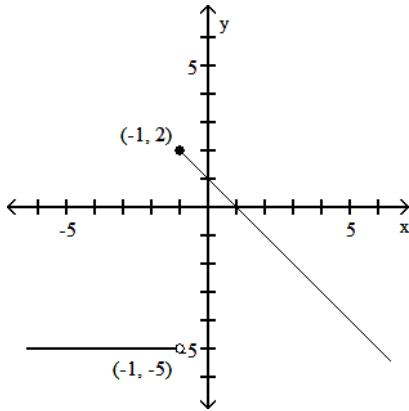
Graph the function.

$$4) f(x) = \begin{cases} x + 1 & \text{if } x < 1 \\ -5 & \text{if } x \geq 1 \end{cases}$$

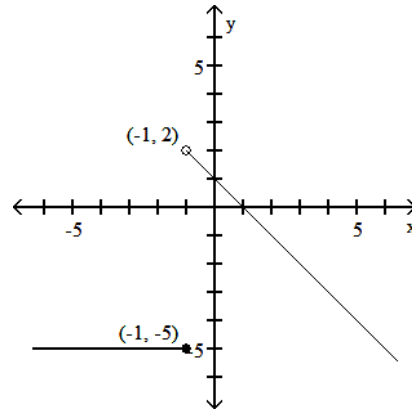
4) \_\_\_\_\_



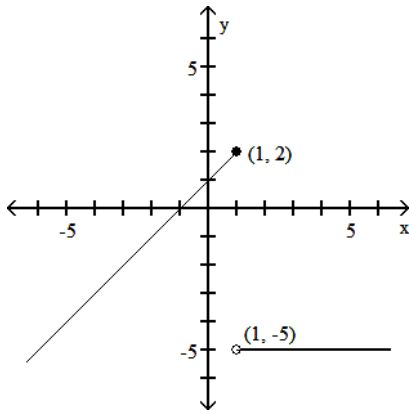
A)



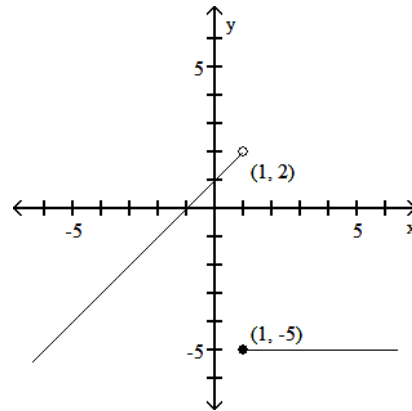
B)



C)



D)



Answer: D

Objective: (2.2) Understand and Use Piecewise Functions

INTERACTMATH SEC 2.2 EXE 45

ALVAREZ--VIDEO 17

Find and simplify the difference quotient  $\frac{f(x+h) - f(x)}{h}$ ,  $h \neq 0$  for the given function.

5)  $f(x) = x^2 + 9x - 2$

5) \_\_\_\_\_

A)  $2x + h - 2$

B)  $\frac{2x^2 + 2x + 2xh + h^2 + h - 4}{h}$

C)  $2x + h + 9$

D) 1

Answer: C

Objective: (2.2) Find and Simplify a Function's Difference Quotient

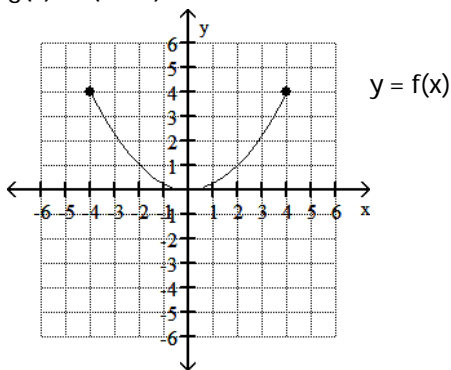
INTERACTMAT SEC 2.2 EXE 61

ALVAREZ-- VIDEO 18

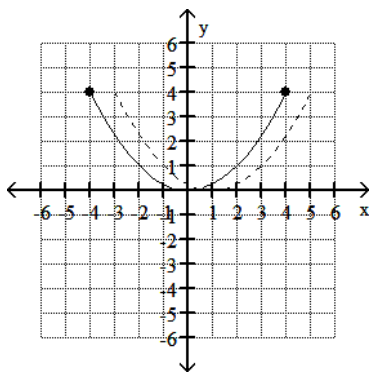
Use the graph of the function  $f$ , plotted with a solid line, to sketch the graph of the given function  $g$ .

6)  $g(x) = f(x + 1)$

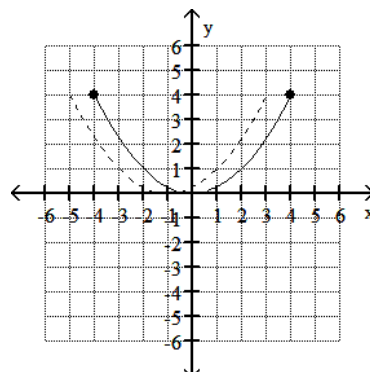
6) \_\_\_\_\_



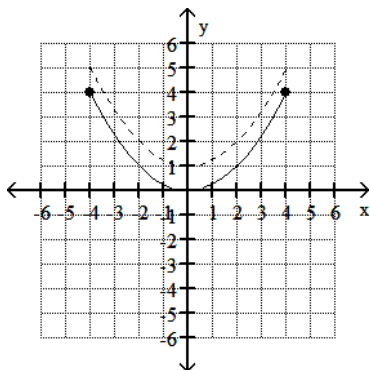
A)



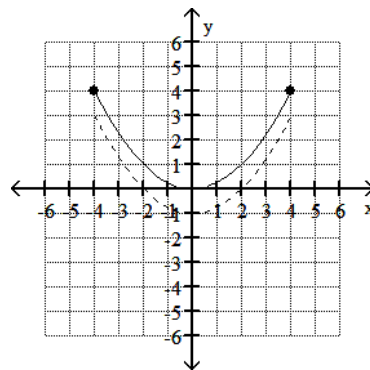
B)



C)



D)



Answer: B

Objective: (2.5) Use Horizontal Shifts to Graph Functions

## ALVAREZ --VIDEO 22

Find the domain of the function.

7)  $f(x) = \sqrt{24 - x}$

A)  $(-\infty, 24) \cup (24, \infty)$

C)  $(-\infty, 24]$

B)  $(-\infty, 2\sqrt{6}]$

D)  $(-\infty, 2\sqrt{6}) \cup (2\sqrt{6}, \infty)$

7) \_\_\_\_\_

Answer: C

Objective: (2.6) Find the Domain of a Function

INTERACTMATH SEC 2.6 EXE 23

ALVAREZ--VIDEO 23

Given functions  $f$  and  $g$ , perform the indicated operations.

8)  $f(x) = 9x - 2$ ,  $g(x) = 4x - 7$

Find  $f - g$ .

A)  $5x - 9$

B)  $-5x - 5$

C)  $5x + 5$

D)  $13x - 9$

8) \_\_\_\_\_

Answer: C

Objective: (2.6) Combine Functions Using the Algebra of Functions, Specifying Domains

INTERACTMATH SEC 2.6 EXE 31

ALVAREZ--VIDEO 25

For the given functions  $f$  and  $g$ , find the indicated composition.

9)  $f(x) = 3x + 14$ ,  $g(x) = 2x - 1$

$(f \circ g)(x)$

A)  $6x + 27$

B)  $6x + 13$

C)  $6x + 11$

D)  $6x + 17$

9) \_\_\_\_\_

Answer: C

Objective: (2.6) Form Composite Functions

INTERACTMATH SEC 2.6 EXE 51

ALVAREZ--VIDEO 30

10)  $f(x) = 4x^2 + 6x + 5$ ,  $g(x) = 6x - 7$

$(g \circ f)(x)$

A)  $24x^2 + 36x + 37$

B)  $24x^2 + 36x + 23$

C)  $4x^2 + 36x + 23$

D)  $4x^2 + 6x - 2$

10) \_\_\_\_\_

Answer: B

Objective: (2.6) Form Composite Functions

INTERACTMATH SEC 2.6 EXE 53

ALVAREZ--VIDEO 31

Find the distance between the pair of points.

11)  $(-1, -3)$  and  $(-5, 0)$

A) 5

B) 10

C) 6

D) 25

11) \_\_\_\_\_

Answer: A

Objective: (2.8) Find the Distance Between Two Points

INTERACTMATH SEC 2.8 EXE 3

ALVAREZ--VIDEO 33

Find the midpoint of the line segment whose end points are given.

12)  $(5, 1)$  and  $(3, 0)$

A)  $(1, \frac{1}{2})$

B)  $(8, 1)$

C)  $(4, \frac{1}{2})$

D)  $(2, 1)$

12) \_\_\_\_\_

Answer: C

Objective: (2.8) Find the Midpoint of a Line Segment

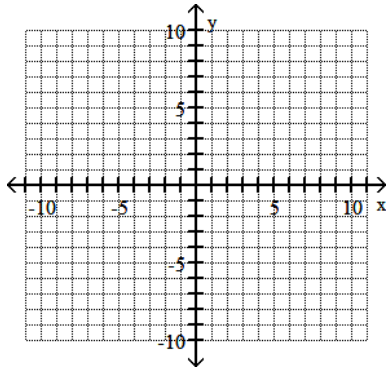
INTERACTMATH SEC 2.8 EXE 19

ALVAREZ--VIDEO 35

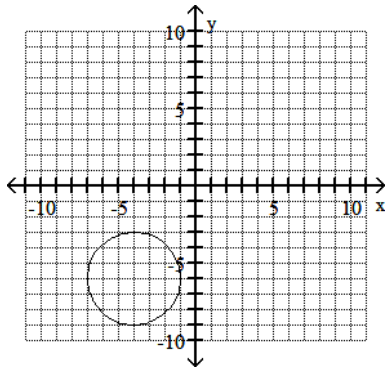
Graph the equation.

13)  $x^2 + y^2 - 8x - 12y + 43 = 0$

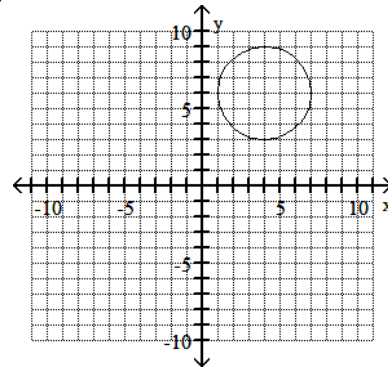
13) \_\_\_\_\_



A)



B)



Answer: B

Objective: (2.8) Convert the General Form of a Circle's Equation to Standard Form

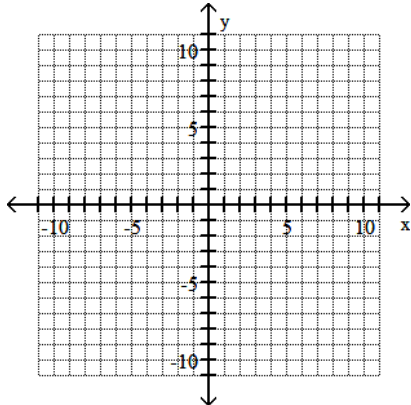
INTERACTMATH SEC 2.8 EXE 53

ALVAREZ--VIDEO 36

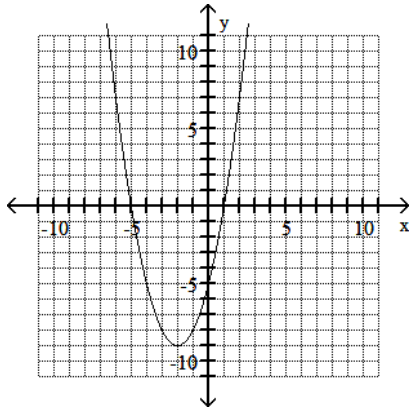
Use the vertex and intercepts to sketch the graph of the quadratic function.

14)  $f(x) = -x^2 - 4x + 5$

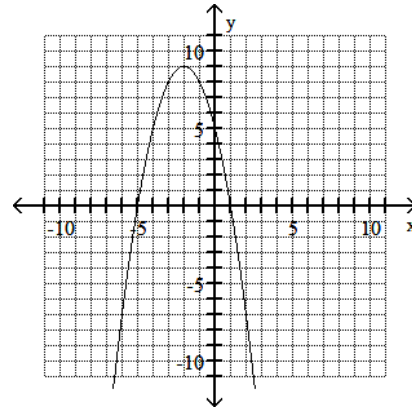
14) \_\_\_\_\_



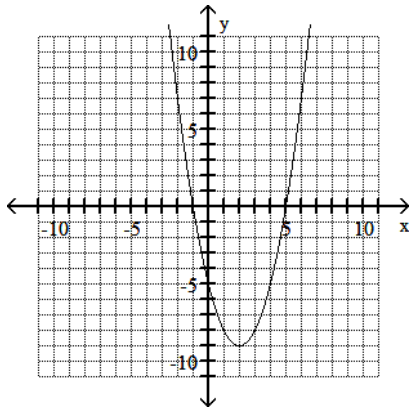
A)



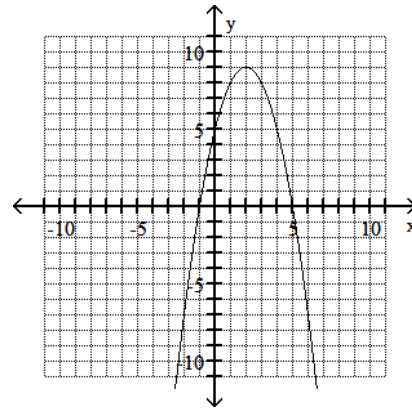
B)



C)



D)



Answer: B

Objective: (3.1) Graph Parabolas

INTERACTMATH SEC 3.1 EXE 3

ALVAREZ--VIDEO 38

Solve the problem.

- 15) An arrow is fired into the air with an initial velocity of 160 feet per second. The height in feet of the arrow  $t$  seconds after it was shot into the air is given by the function  $h(x) = -16t^2 + 160t$ . Find the maximum height of the arrow. 15) \_\_\_\_\_

A) 1200 ft

B) 80 ft

C) 400 ft

D) 720 ft

Answer: C

Objective: (3.1) Solve Problems Involving a Quadratic Function's Minimum or Maximum Value

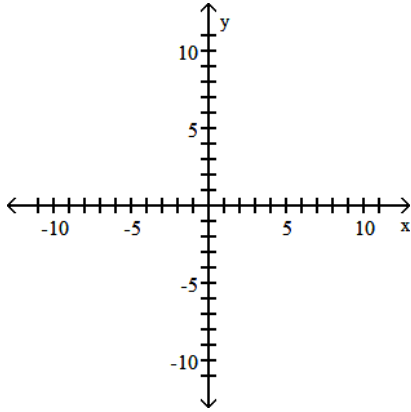
INTERACTMATH SEC 3.1 EXE 29

ALVAREZ--VIDEO 39

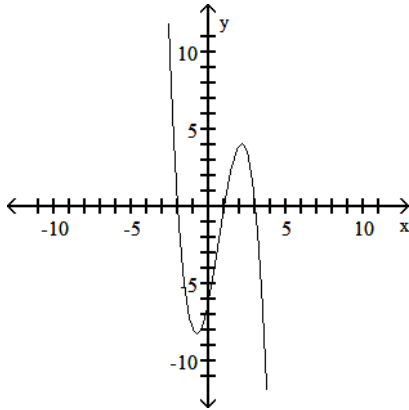
Graph the polynomial function.

16)  $f(x) = x^3 - 2x^2 - 5x + 6$

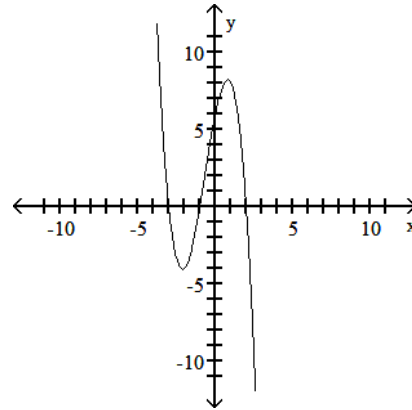
16) \_\_\_\_\_



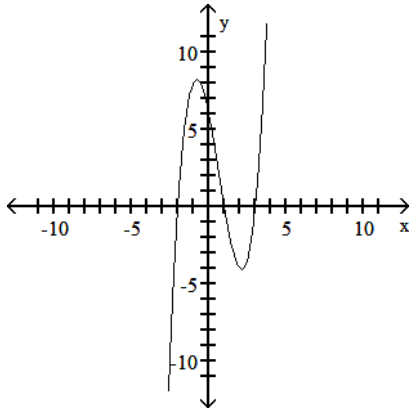
A)



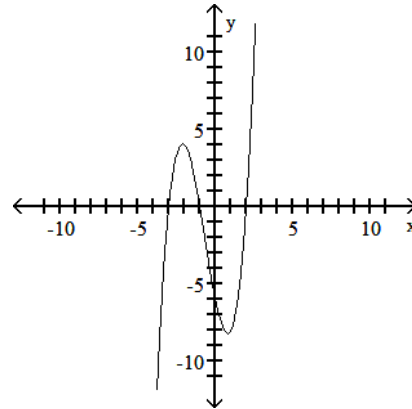
B)



C)



D)



Answer: C

Objective: (3.2) Graph Polynomial Functions

INTERACTMATH SEC 3.2 EXE 15

ALVAREZ--VIDEO 43

Solve the polynomial equation. In order to obtain the first root, use synthetic division to test the possible rational roots.

17)  $x^3 + 3x^2 - 4x - 12 = 0$

17) \_\_\_\_\_

A)  $\{-2, 2, 3\}$

B)  $\{-3\}$

C)  $\{-3, -2, 2\}$

D)  $\{-2\}$

Answer: C

Objective: (3.4) Solve Polynomial Equations

INTERACTMATH SEC 3.4 EXE 17

ALVAREZ--VIDEO 48





Solve the equation by expressing each side as a power of the same base and then equating exponents.

23)  $4x + 10 = 8x - 2$  23) \_\_\_\_\_  
A) {22} B) {26} C) {16} D) {12}

Answer: B

Objective: (4.4) Use Like Bases to Solve Exponential Equations

INTERACTMATH SEC 4.4 EXE 19

ALVAREZ--VIDEO 70

Solve the logarithmic equation. Be sure to reject any value that is not in the domain of the original logarithmic expressions. Give the exact answer.

24)  $\log_4(x - 4) + \log_4(x - 10) = 2$  24) \_\_\_\_\_  
A) {12, 2} B) {12} C) {13} D) {2}

Answer: B

Objective: (4.4) Use the Definition of a Logarithm to Solve Logarithmic Equations

INTERACTMATH SEC 4.4 EXE 65

ALVAREZ--VIDEO 76

25)  $\log x + \log(x - 1) = \log 12$  25) \_\_\_\_\_  
A) {4, -3} B) {-3} C)  $\left\{\frac{13}{2}\right\}$  D) {4}

Answer: D

Objective: (4.4) Use the One-to-One Property of Logarithms to Solve Logarithmic Equations

INTERACTMATH SEC 4.4 EXE 85

ALVAERZ--VIDEO 80

Solve the problem.

26) The function  $A = A_0e^{-0.0077x}$  models the amount in pounds of a particular radioactive material stored in a concrete vault, where  $x$  is the number of years since the material was put into the vault. If 800 pounds of the material are placed in the vault, how much time will need to pass for only 504 pounds to remain? 26) \_\_\_\_\_  
A) 70 years B) 120 years C) 60 years D) 65 years

Answer: C

Objective: (4.4) Solve Applied Problems Involving Exponential and Logarithmic Equations

INTERACTMATH SEC 4.4 EXE 101

ALVAREZ--VIDEO 83

27) The population of a certain country is growing at a rate of 2.5% per year. How long will it take for this country's population to double? Use the formula  $t = \frac{\ln 2}{k}$ , which gives the time,  $t$ , for a population with growth rate  $k$ , to double. (Round to the nearest whole year.) 27) \_\_\_\_\_  
A) 28 years B) 27 years C) 29 years D) 30 years

Answer: A

Objective: (4.4) Solve Applied Problems Involving Exponential and Logarithmic Equations

INTERACTMATH SEC 4.4 EXE 101

ALVAREZ--VIDEO 84

Solve the system of equations.

28)  $x + y + z = -6$  28) \_\_\_\_\_  
 $x - y + 3z = 2$   
 $3x + y + z = -14$   
A) {(-3, -4, 1)} B) {(-4, -3, 1)} C) {(1, -3, -4)} D) {(1, -4, -3)}

Answer: B

Objective: (5.2) Solve Systems of Linear Equations in Three Variables

INTERACTMATH SEC 5.4 EXE 7

ALVAREZ-VIDEO 89

Find the indicated sum.

29)  $\sum_{i=3}^5 (i^2 + 2)$

29) \_\_\_\_\_

A) 30

B) 56

C) 65

D) 18

Answer: B

Objective: (8.1) Use Summation Notation

INTERACTMATH SEC 8.1 EXE 33

ALVAREZ--VIDEO 98

Use the Binomial Theorem to expand the binomial and express the result in simplified form.

30)  $(2x + 3)^3$

30) \_\_\_\_\_

A)  $4x^6 + 6x^3 + 729$

B)  $8x^3 + 36x^2 + 36x + 27$

C)  $8x^3 + 36x^2 + 54x + 27$

D)  $4x^2 + 12x + 9$

Answer: C

Objective: (8.5) Expand a Binomial Raised to a Power

INTERACTMATH SEC 8.5 EXE 11

ALVAREZ--VIDEO 99