

Name _____ atfm1314bli2810yes

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VIDEOS (ON DEMAND 49)

BLITZER COLLEGE ALGEBRA 5e

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

Solve the equation by factoring.

1) $12x^2 + 31x + 20 = 0$

A) $\left\{-\frac{5}{12}, -\frac{1}{5}\right\}$

B) $\left\{\frac{5}{4}, -\frac{4}{3}\right\}$

C) $\left\{\frac{5}{4}, \frac{4}{3}\right\}$

D) $\left\{-\frac{5}{4}, -\frac{4}{3}\right\}$

1) _____

Answer: D

Objective: (1.5) Solve Quadratic Equations by Factoring

ALVAREZ VIDEO 4

Solve the equation using the quadratic formula.

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

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

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

C) $\{5, 9\}$

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

2) _____

Answer: A

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

ALVAREZ VIDEO 8

Solve the radical equation, and check all proposed solutions.

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

A) $\{-5\}$

B) $\{3\}$

C) $\{-4\}$

D) $\{5\}$

3) _____

Answer: D

Objective: (1.6) Solve Radical Equations

ALVAREZ --VIDEO 9

4) $x - \sqrt{3x - 2} = 4$

A) $\{2, 9\}$

B) $\{-1\}$

C) $\{9\}$

D) $\{1, 2\}$

4) _____

Answer: C

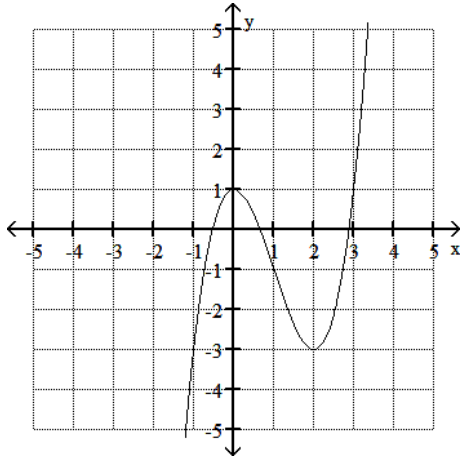
Objective: (1.6) Solve Radical Equations

ALVAREZ--VIDEO 10

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

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

5) _____



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

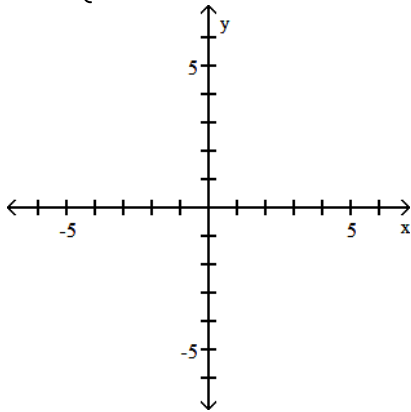
Objective: (2.2) Use Graphs to Locate Relative Maxima or Minima

ALVAREZ--VIDEO 15

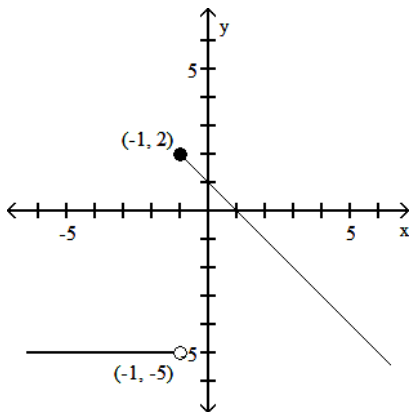
Graph the function.

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

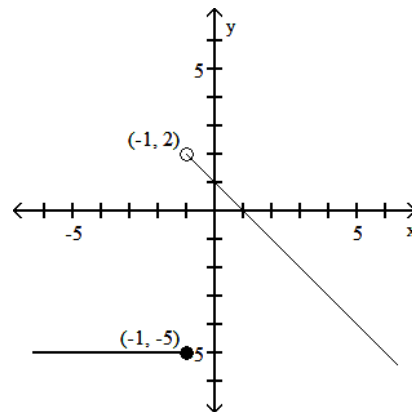
6) _____



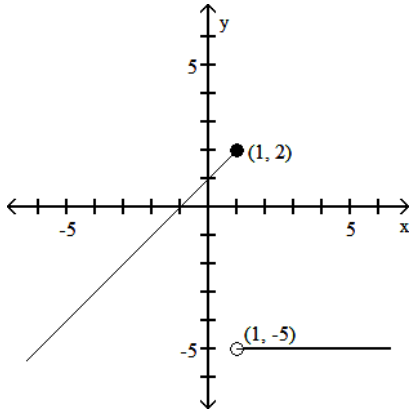
A)



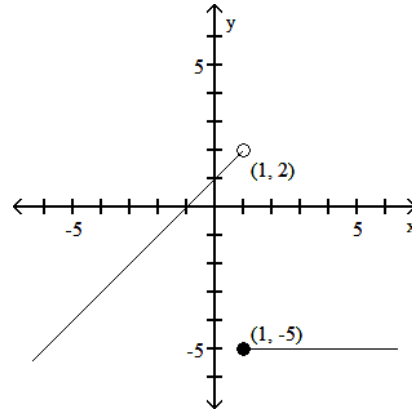
B)



C)



D)



Answer: D

Objective: (2.2) Understand and Use Piecewise Functions

ALVAREZ--VIDEO 17

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

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

A) $2x + h - 2$

C) $2x + h + 9$

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

D) 1

7) _____

Answer: C

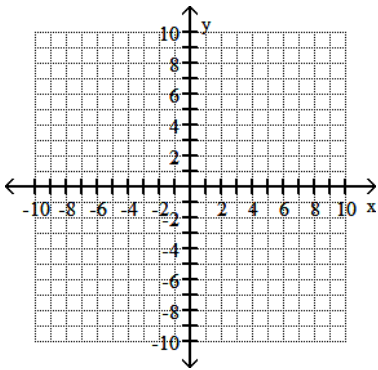
Objective: (2.2) Find and Simplify a Function's Difference Quotient

ALVAREZ-- VIDEO 18

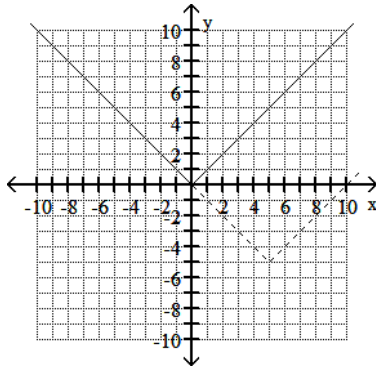
Begin by graphing the standard absolute value function $f(x) = |x|$. Then use transformations of this graph to graph the given function.

8) $h(x) = |x - 5| - 5$

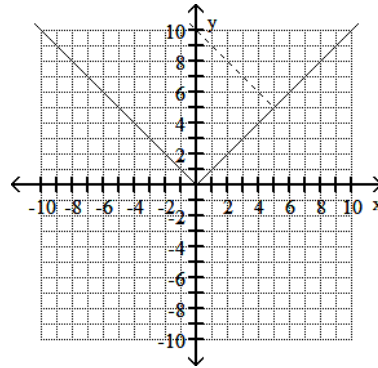
8) _____



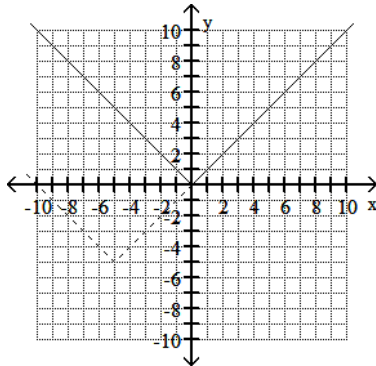
A)



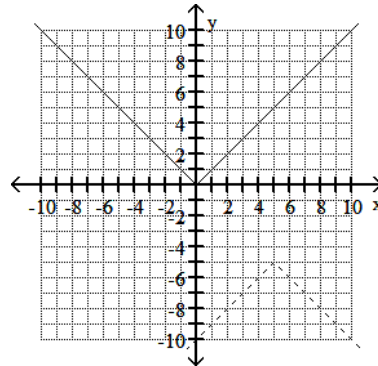
B)



C)



D)



Answer: A

Objective: (2.5) Use Horizontal Shifts to Graph Functions

ALVAREZ--VIDEO 21

Find the domain of the function.

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

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

C) $(-\infty, 24]$

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

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

9) _____

Answer: C

Objective: (2.6) Find the Domain of a Function

ALVAREZ--VIDEO 23

Given functions f and g , perform the indicated operations.

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

Find $f - g$.

A) $5x - 9$

B) $-5x - 5$

C) $5x + 5$

D) $13x - 9$

10) _____

Answer: C

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

ALVAREZ--VIDEO 25

- 11) $f(x) = 9 - 2x$, $g(x) = -4x + 2$ 11) _____
Find $f + g$.
A) $5x$ B) $-4x + 9$ C) $2x + 11$ D) $-6x + 11$

Answer: D

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

ALVAREZ--VIDEO 27

- 12) $f(x) = 3x - 6$, $g(x) = 5x - 7$ 12) _____
Find fg .
A) $8x^2 - 51x - 13$ B) $15x^2 - 37x + 42$ C) $15x^2 - 51x + 42$ D) $15x^2 + 42$

Answer: C

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

ALVAREZ VIDEO 28

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

- 13) $f(x) = 3x + 14$, $g(x) = 2x - 1$ 13) _____
 $(f \circ g)(x)$
A) $6x + 27$ B) $6x + 13$ C) $6x + 11$ D) $6x + 17$

Answer: C

Objective: (2.6) Form Composite Functions

ALVAREZ--VIDEO 30

- 14) $f(x) = 4x^2 + 6x + 5$, $g(x) = 6x - 7$ 14) _____
 $(g \circ f)(x)$
A) $24x^2 + 36x + 37$ B) $24x^2 + 36x + 23$ C) $4x^2 + 36x + 23$ D) $4x^2 + 6x - 2$

Answer: B

Objective: (2.6) Form Composite Functions

ALVAREZ--VIDEO 31

Find the distance between the pair of points.

- 15) $(-1, -3)$ and $(-5, 0)$ 15) _____
A) 5 B) 10 C) 6 D) 25

Answer: A

Objective: (2.8) Find the Distance Between Two Points

ALVAREZ--VIDEO 33

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

- 16) $(5, 1)$ and $(3, 0)$ 16) _____
A) $(1, \frac{1}{2})$ B) $(8, 1)$ C) $(4, \frac{1}{2})$ D) $(2, 1)$

Answer: C

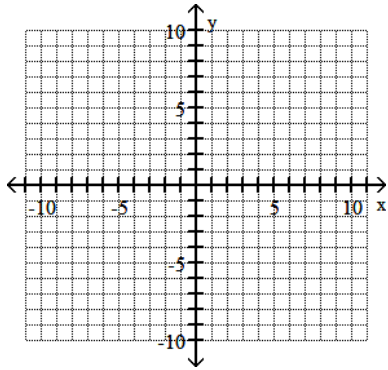
Objective: (2.8) Find the Midpoint of a Line Segment

ALVAREZ--VIDEO 35

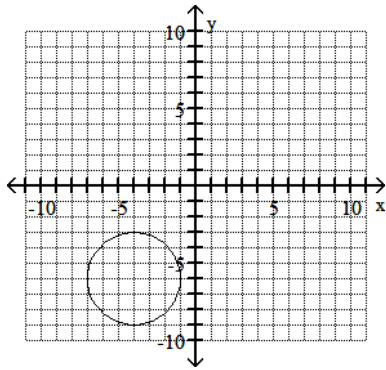
Graph the equation.

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

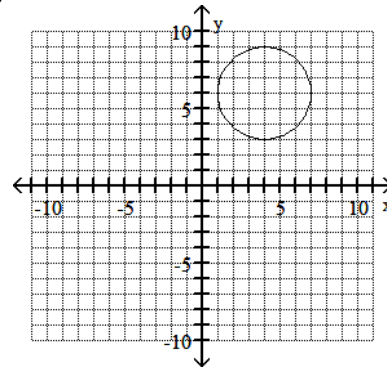
17) _____



A)



B)



Answer: B

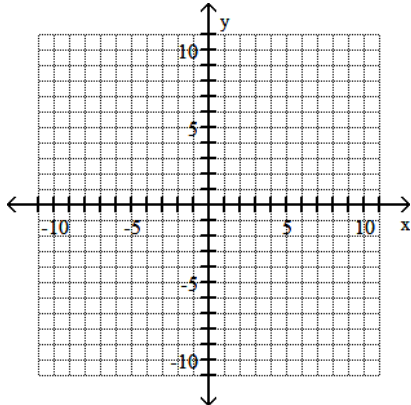
Objective: (2.8) Convert the General Form of a Circle's Equation to Standard Form

ALVAREZ--VIDEO 36

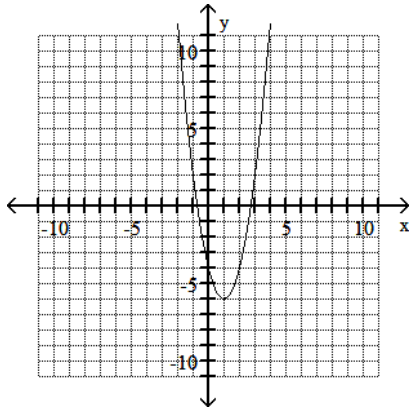
Use the vertex and intercepts to sketch the graph of the quadratic function.

18) $f(x) = 2(x + 6)^2 + 1$

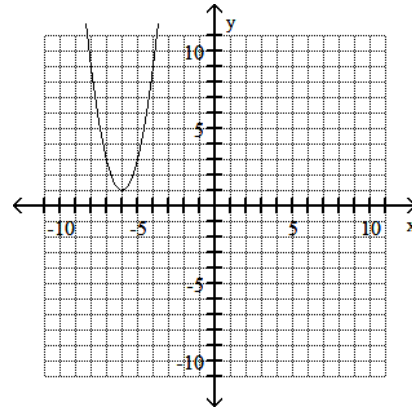
18) _____



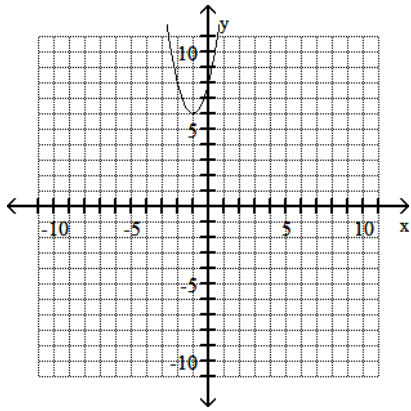
A)



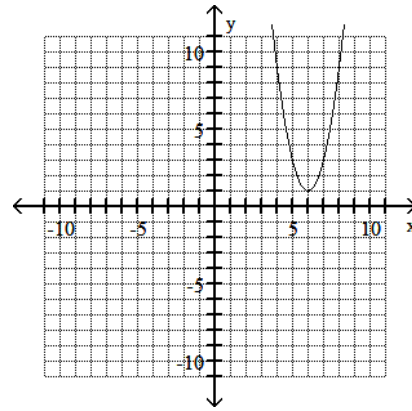
B)



C)



D)

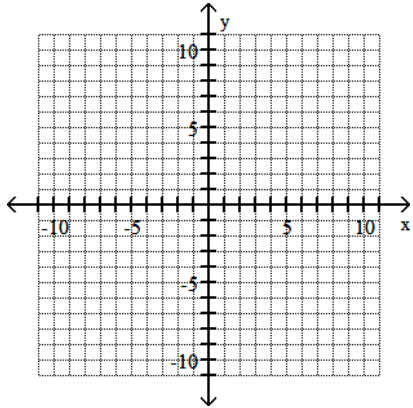


Answer: B

Objective: (3.1) Graph Parabolas

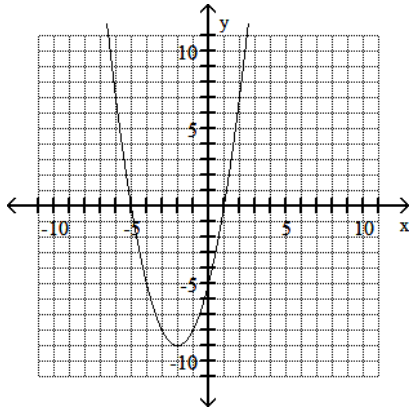
ALVAREZ--VIDEO 37

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

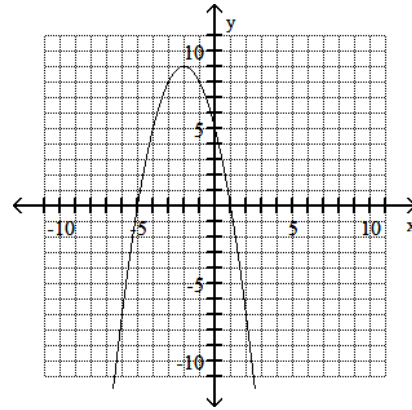


19) _____

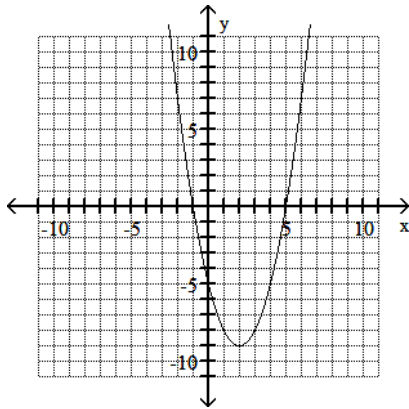
A)



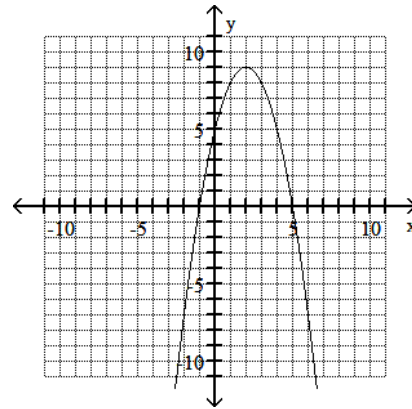
B)



C)



D)



Answer: B

Objective: (3.1) Graph Parabolas

ALVAREZ--VIDEO 38

Solve the problem.

20) 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. 20) _____

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

ALVAREZ--VIDEO 39

Find the zeros of the polynomial function.

21) $f(x) = x^3 + 5x^2 - x - 5$ 21) _____

A) $x = -5, x = 5$

B) $x = 1, x = -5, x = 5$

C) $x = 25$

D) $x = -1, x = 1, x = -5$

Answer: D

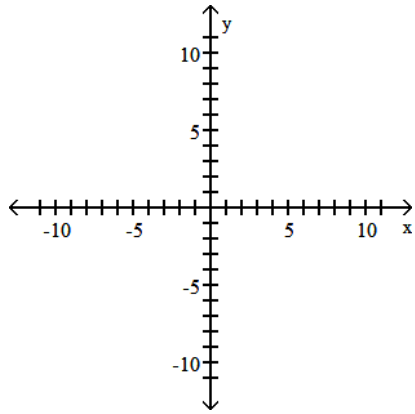
Objective: (3.2) Use Factoring to Find Zeros of Polynomial Functions

ALVAREZ--VIDEO 42

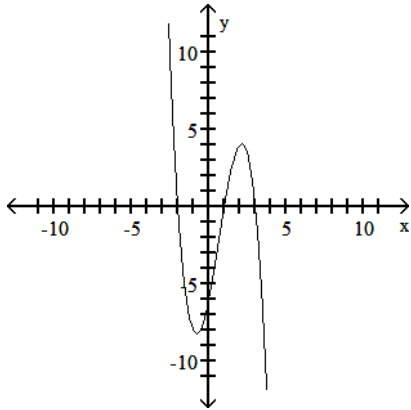
Graph the polynomial function.

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

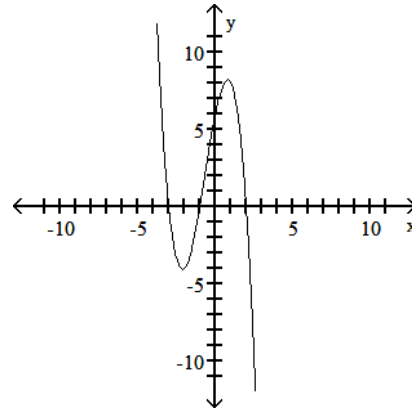
22) _____



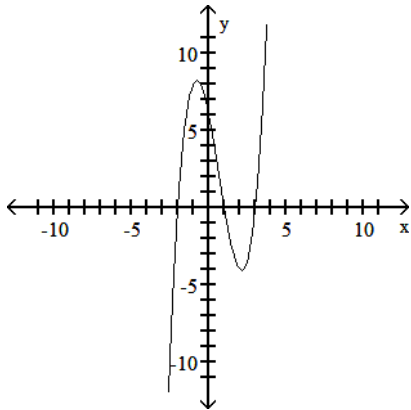
A)



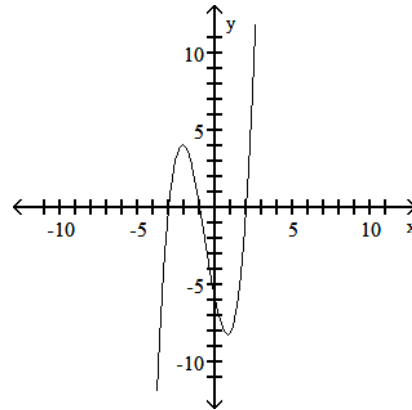
B)



C)



D)



Answer: C

Objective: (3.2) Graph Polynomial Functions

ALVAREZ--VIDEO 43

Find the horizontal asymptote, if any, of the graph of the rational function.

$$28) f(x) = \frac{25x}{5x^2 + 1}$$

28) _____

A) $y = \frac{1}{5}$

B) $y = 0$

C) $y = 5$

D) no horizontal asymptote

Answer: B

Objective: (3.5) Identify Horizontal Asymptotes

ALVAREZ--VIDEO 55

$$29) g(x) = \frac{4x^2 - 7x - 5}{7x^2 - 3x + 7}$$

29) _____

A) $y = \frac{7}{3}$

B) $y = 0$

C) $y = \frac{4}{7}$

D) no horizontal asymptote

Answer: C

Objective: (3.5) Identify Horizontal Asymptotes

ALVAREZ--VIDEO 56

Find the slant asymptote, if any, of the graph of the rational function.

$$30) f(x) = \frac{x^2 + 3x - 8}{x - 4}$$

30) _____

A) $y = x + 3$

B) $y = x$

C) $y = x + 7$

D) no slant asymptote

Answer: C

Objective: (3.5) Identify Slant Asymptotes

ALVAREZ--VIDEO 57

Find the domain of the logarithmic function.

$$31) f(x) = \ln(6 - x)$$

31) _____

A) $(-\infty, 6)$

B) $(-6, \infty)$

C) $(-\infty, 0)$

D) $(-\infty, 6)$ or $(6, \infty)$

Answer: A

Objective: (4.2) Find the Domain of a Logarithmic Function

ALVAREZ--VIDEO 63

Use properties of logarithms to expand the logarithmic expression as much as possible. Where possible, evaluate logarithmic expressions without using a calculator.

32) $\log_a \left(\frac{x^4 \sqrt[3]{x+5}}{(x-2)^2} \right)$ 32) _____

A) $4 \log_a x + \frac{1}{3} \log_a (x+5) - 2 \log_a (x-2)$

B) $\log_a x^4 + \log_a (x+5)^{1/3} - \log_a (x-2)^2$

C) $\log_a x^4 + \log_a (x+5)^{-3} - \log_a (x-2)^2$

D) $4 \log_a x - 3 \log_a (x+5) - 2 \log_a (x-2)$

Answer: A

Objective: (4.3) Expand Logarithmic Expressions

ALVAREZ--VIDEO 66

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

33) $4^x + 10 = 8^x - 2$ 33) _____

A) {22}

B) {26}

C) {16}

D) {12}

Answer: B

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

ALVAREZ--VIDEO 70

Solve the exponential equation. Express the solution set in terms of natural logarithms.

34) $9^{5x} = 3.3$ 34) _____

A) $\left\{ \frac{\ln 3.3}{5 \ln 9} \right\}$

B) $\left\{ \frac{3.3 \ln 5}{\ln 9} \right\}$

C) $\left\{ \frac{\ln 3.3}{9 \ln 5} \right\}$

D) $\left\{ \frac{5 \ln 3.3}{\ln 9} \right\}$

Answer: A

Objective: (4.4) Use Logarithms to Solve Exponential Equations

ALVAREZ--VIDEO 71

Solve the exponential equation. Use a calculator to obtain a decimal approximation, correct to two decimal places, for the solution.

35) $7e^x = 10$ 35) _____

A) 0.36

B) -0.36

C) 0.15

D) -0.15

Answer: A

Objective: (4.4) Use Logarithms to Solve Exponential Equations

ALVAREZ--VIDEO 72

36) $4^{x+6} = 7$ 36) _____

A) -0.54

B) 1.49

C) -4.60

D) 6.71

Answer: C

Objective: (4.4) Use Logarithms to Solve Exponential Equations

ALVAREZ-- VIDEO 73

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.

37) $\log_4(x - 4) + \log_4(x - 10) = 2$ 37) _____
A) {12, 2} B) {12} C) {13} D) {2}

Answer: B

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

ALVAREZ--VIDEO 76

38) $\log_6(x^2 - 5x) = 1$ 38) _____
A) {1} B) {-6, 1} C) {6} D) {6, -1}

Answer: D

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

ALVAREZ--VIDEO 77

39) $\log_5(x - 1) - \log_5(x - 3) = 1$ 39) _____
A) $\{\frac{1}{2}\}$ B) $\{\frac{7}{2}\}$ C) $\{-\frac{7}{2}\}$ D) \emptyset

Answer: B

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

ALVAREZ VIDEO 78

40) $\log(5 + x) - \log(x - 3) = \log 5$ 40) _____
A) {5} B) $\{\frac{3}{2}\}$ C) \emptyset D) {-5}

Answer: A

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

ALVAREZ VIDEO 79

41) $\log x + \log(x - 1) = \log 12$ 41) _____
A) {4, -3} B) {-3} C) $\{\frac{13}{2}\}$ D) {4}

Answer: D

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

ALVAERZ--VIDEO 80

Solve the problem.

42) Find out how long it takes a \$2500 investment to double if it is invested at 8% compounded quarterly. Round to the nearest tenth of a year. Use the formula $A = P\left(1 + \frac{r}{n}\right)^{nt}$. 42) _____
A) 9 years B) 9.2 years C) 8.6 years D) 8.8 years

Answer: D

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

ALVAREZ VIDEO 81

- 43) 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? 43) _____

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

ALVAREZ--VIDEO 83

- 44) 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 44) _____

population with growth rate k , to double. (Round to the nearest whole year.)

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

ALVAREZ--VIDEO 84

Solve.

- 45) A fossilized leaf contains 38% of its normal amount of carbon 14. How old is the fossil (to the nearest year)? Use 5600 years as the half-life of carbon 14. 45) _____

A) 33,283 B) 7803 C) 3855 D) 29,335

Answer: B

Objective: (4.5) Model Exponential Growth and Decay

ALVAREZ--VIDEO 87

Solve the system of equations.

- 46) $x + y + z = -6$ 46) _____

$$x - y + 3z = 2$$

$$3x + y + z = -14$$

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

ALVAREZ-VIDEO 89

Find the indicated sum.

- 47) $\sum_{i=3}^5 (i^2 + 2)$ 47) _____

A) 30 B) 56 C) 65 D) 18

Answer: B

Objective: (8.1) Use Summation Notation

ALVAREZ--VIDEO 98

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

48) $(2x + 3)^3$

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

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

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

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

48) _____

Answer: C

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

ALVAREZ--VIDEO 99

Write the first three terms in the binomial expansion, expressing the result in simplified form.

49) $(x + 2)^{15}$

A) $x^{15} + 28x^{14} + 840x^{13}$

B) $x^{15} + 30x^{14} + 420x^{13}$

C) $x^{15} + 28x^{14} + 420x^{13}$

D) $x^{15} + 30x^{14} + 840x^{13}$

49) _____

Answer: B

Objective: (8.5) Find a Particular Term in a Binomial Expansion

ALVAREZ--VIDEO 100