

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

**Solve.**

- 1) The owner of Nuts2U Snack Shack mixes cashews worth \$5.50 a pound with peanuts worth \$2.20 a pound to get a half-pound mixed nut bag worth \$1.80. How much of each kind of nut is included in the mixed bag? 1) \_\_\_\_\_
- A) 0.21 lb of cashews and 0.29 lb of peanuts  
 B) 0.29 lb of cashews and 0.21 lb of peanuts  
 C) 0.07 lb of cashews and 0.93 lb of peanuts  
 D) 0.10 lb of cashews and 0.90 lb of peanuts

**Use the quadratic formula to find the exact solutions.**

- 2)  $x^2 = 15 + 3x$  2) \_\_\_\_\_
- A)  $\frac{3}{2} \pm \frac{\sqrt{69}}{2}i$       B)  $3 \pm \sqrt{69}i$       C)  $\frac{3 \pm \sqrt{69}}{2}$       D) 3, 15

**Solve.**

- 3)  $\frac{6x}{x-6} - \frac{4}{x} = \frac{24}{x^2 - 6x}$  3) \_\_\_\_\_
- A)  $\frac{3}{2}$       B)  $\frac{2}{3}$       C)  $\frac{1}{3}, -\frac{1}{3}$       D)  $\frac{2}{3}, -\frac{2}{3}$
- 4)  $x = \sqrt{x+13} + 7$  4) \_\_\_\_\_
- A) 3, 12      B) 12      C) 3      D) -9
- 5)  $|x + 1| + 8 = 14$  5) \_\_\_\_\_
- A) -7, 5      B) -5, 7      C) No solution      D) 5

**Solve and write interval notation for the solution set.**

- 6)  $|8x + 3| < 13$  6) \_\_\_\_\_
- A)  $(-\infty, 8)$       B)  $(-\infty, -2)$   
 C)  $(-\infty, -2) \cup \left(\frac{5}{4}, \infty\right)$       D)  $\left(-2, \frac{5}{4}\right)$

Given that the polynomial function has the given zero, find the other zeros.

7)  $f(x) = x^3 - 3x^2 - 5x + 39$ ;  $-3$

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

A)  $1 + 2\sqrt{13}i$ ,  $1 - 2\sqrt{13}i$

B)  $1 + 2i$ ,  $1 - 2i$

C)  $3 + 4i$ ,  $3 - 4i$

D)  $3 + 2i$ ,  $3 - 2i$

Solve.

8)  $x^2 - 5x - 6 < 0$

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

A)  $(-1, 6)$

B)  $(-\infty, -1) \cup (6, \infty)$

C)  $(-\infty, -1)$

D)  $(6, \infty)$

Solve the exponential equation. Round to three decimal places when necessary.

9)  $7^{x+8} = 9^x$

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

A) 63.893

B) 61.943

C) 59.993

D) -61.943

Solve the logarithmic equation.

10)  $\log(2 + x) - \log(x - 2) = \log 3$

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

A)  $\emptyset$

B)  $\frac{3}{2}$

C) 4

D) -4

Find the domain of the function.

11)  $f(x) = \frac{x}{x - 7}$

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

A)  $\{x \mid x > 0\}$ , or  $(0, \infty)$

B)  $\{x \mid x \neq -7\}$ , or  $(-\infty, -7) \cup (-7, \infty)$

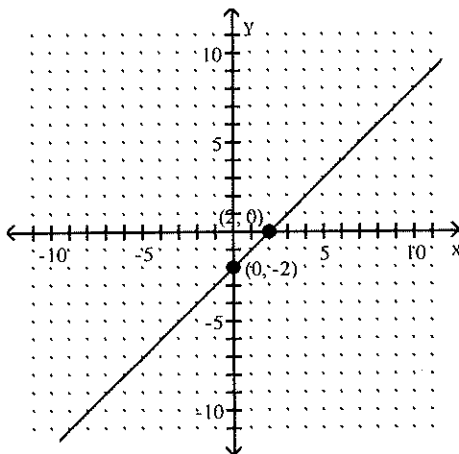
C)  $\{x \mid x \neq 7\}$ , or  $(-\infty, 7) \cup (7, \infty)$

D)  $\{x \mid x < 0\}$ , or  $(-\infty, 0)$

Find the slope of the line.

12)

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



A) -1

B) 2

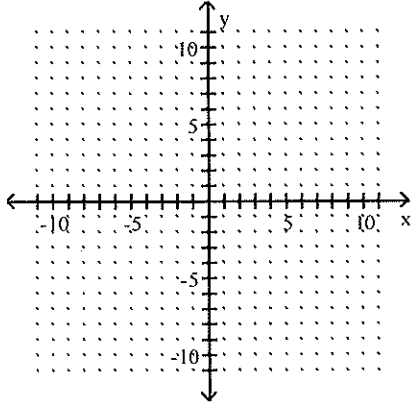
C) -2

D) 1

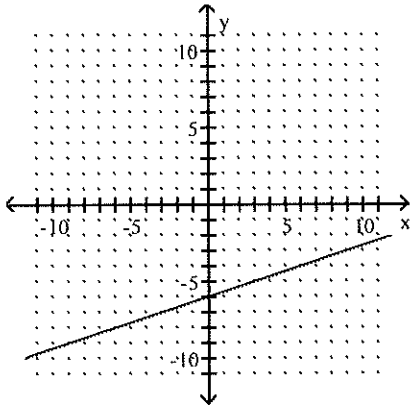
Graph the equation using the slope and the y-intercept.

13)  $5y + 15x = 30$

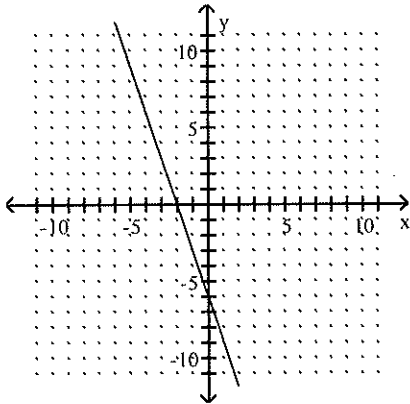
13) \_\_\_\_\_



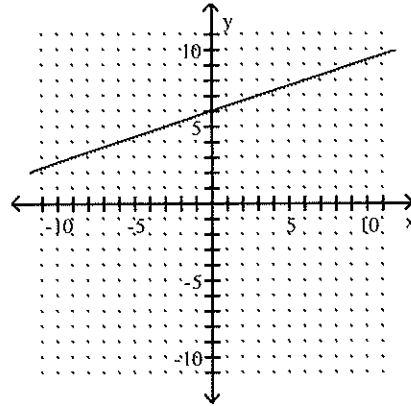
A)



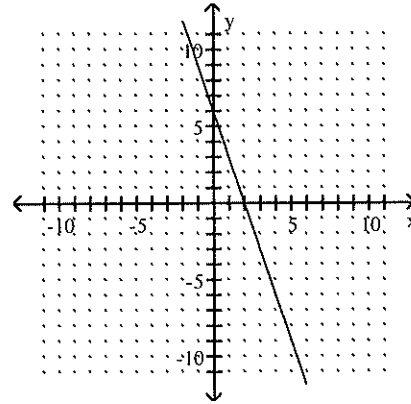
C)



B)



D)



Solve.

14) A projectile is thrown upward so that its distance above the ground after  $t$  seconds is

$h(t) = -16t^2 + 364t$ . After how many seconds does it reach its maximum height?

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

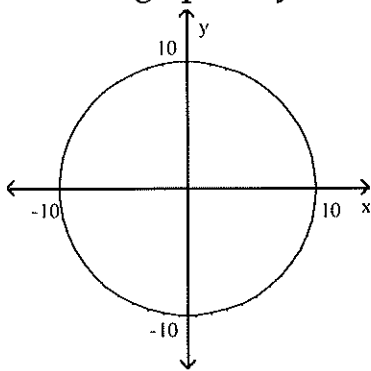
A) 6 sec

B) 26 sec

C) 19.5 sec

D) 11 sec

Determine if the graph is symmetric with respect to x-axis, y-axis, and/or the origin.



15)

- A) x-axis, y-axis, origin
- C) x-axis

- B) x-axis, origin
- D) Origin

15) \_\_\_\_\_

Answer the question.

16) How can the graph of  $f(x) = \frac{1}{2}(x + 10)^2 - 1$  be obtained from the graph of  $y = x^2$ ?

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

- A) Shift it horizontally 10 units to the left. Shrink it vertically by a factor of  $\frac{1}{2}$ .

Shift it 1 units down.

- B) Shift it horizontally 10 units to the right. Stretch it vertically by a factor of 2. Shift it 1 units up.

- C) Shift it horizontally 10 units to the left. Shrink it vertically by a factor of 2. Shift it 1 units down.

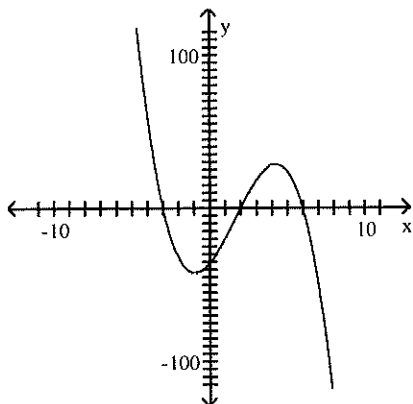
- D) Shift it horizontally 10 units to the right. Shrink it vertically by a factor of  $\frac{1}{2}$ .

Shift it 1 units down.

Solve the given inequality (a related function is graphed).

17)  $-x^3 + 5x^2 + 12x - 36 < 0$

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



x-intercepts:  $(-3, 0)$ ,  $(2, 0)$ ,  $(6, 0)$

- A)  $[-3, 2] \cup [6, \infty)$
- C)  $(-3, 2) \cup (6, \infty)$

- B)  $(-\infty, -3) \cup (2, 6)$
- D)  $(6, \infty)$

Find the vertical asymptote(s) of the graph of the given function.

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

18) \_\_\_\_\_

A)  $x = -4$

B)  $x = 0, x = -4$

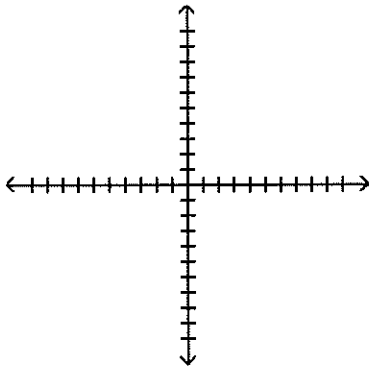
C)  $x = 3$

D)  $x = 0, x = 4$

Graph the function, showing all asymptotes (those that do not correspond to an axis) as dashed lines. List the x- and y-intercepts.

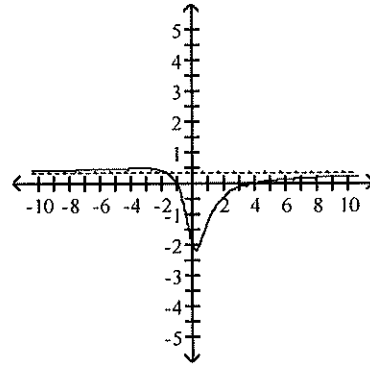
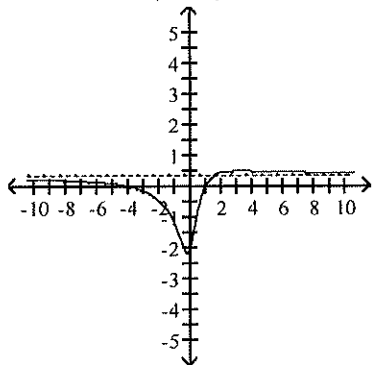
19)  $f(x) = \frac{x^2-3x-4}{3x^2+2}$

19) \_\_\_\_\_



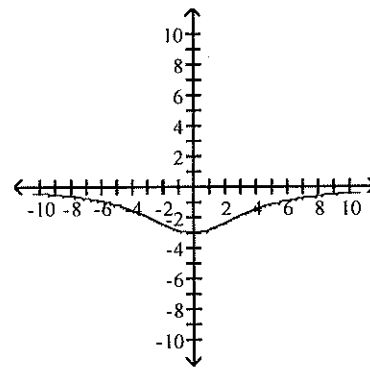
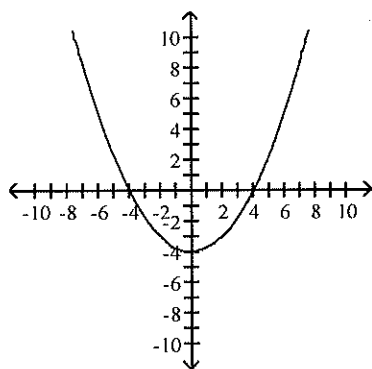
A) x-intercepts: (1, 0) and (-4, 0),  
y-intercept: (0, -2);

B) x-intercepts: (-1, 0) and (4, 0),  
y-intercept: (0, -2);



C) No x-intercepts, y-intercept: (0, -4);

D) No x-intercepts, y-intercept: (0, -4);



Determine whether the given function is one-to-one. If it is one-to-one, find a formula for the inverse.

20)  $f(x) = 3x + 6$

20) \_\_\_\_\_

A)  $f^{-1}(x) = \frac{x}{3} - 6$

B)  $f^{-1}(x) = \frac{x + 6}{3}$

C)  $f^{-1}(x) = \frac{x - 6}{3}$

D) Not one-to-one

Answer Key

Testname: FINAL EXAM PRACTICE TEST REVISED 3\_8\_2019(TEST GEN) (00000002)

- 1) A
- 2) C
- 3) B
- 4) B
- 5) A
- 6) D
- 7) D
- 8) A
- 9) B
- 10) C
- 11) C
- 12) D
- 13) D
- 14) D
- 15) A
- 16) A
- 17) C
- 18) B
- 19) B
- 20) C