

Practice for Semester 1 Exam

Date_____ Period_____

Evaluate each function.

1) $k(n) = 2n - 1$; Find $k(2)$

2) $g(a) = 4a - 2$; Find $g(n + 3)$

Perform the indicated operation.

3) $f(n) = -3n + 2$

$g(n) = 3n + 3$

Find $(f - g)(n)$

4) $f(a) = 3a + 3$

$g(a) = 4a$

Find $(f \cdot g)(a)$

5) $g(x) = -x - 5$

$f(x) = 4x$

Find $g(f(x))$

6) $g(a) = a + 4$

$f(a) = a^2 + 4$

Find $g(f(a))$

Write the slope-intercept form of the equation of the line through the given points.

7) through: $(5, 2)$ and $(-2, -5)$

8) through: $(0, 1)$ and $(-2, 1)$

Write the slope-intercept form of the equation of the line described.

9) through: $(-2, -5)$, parallel to $y = \frac{7}{2}x - 3$

10) through: $(-1, -3)$, perp. to $y = -\frac{1}{6}x + 4$

Sketch the graph of each linear inequality.

11) $3x + y \geq -4$

12) $2x + 3y > -9$

Solve each system. Use Elimination by Substitution or Elimination by Addition.

13) $y = -3x + 12$

$3x - 7y = -12$

14) $-4x + 7y = -6$

$y = -8x - 18$

Evaluate.

15) $\begin{vmatrix} 2 & 0 \\ 0 & 5 \end{vmatrix}$

16) $\begin{vmatrix} 5 & 2 \\ 1 & 1 \end{vmatrix}$

Graph the solution to each system of inequalities.

17) $y < -x - 3$

$y \leq 4x + 2$

18) $2x + 3y \leq 9$

$4x - 3y < 9$

Solve each equation by factoring.

19) $x^2 + 13x = -40$

20) $10x^2 = 1 + 3x$

Find the discriminant of each quadratic equation then state the number and type of solutions.

21) $-5k^2 + 6k - 4 = 0$

22) $5a^2 - a + 1 = 0$

Solve each equation with the quadratic formula.

23) $2p^2 + 5p + 3 = 0$

Simplify.

24) $4x^3y^2 \cdot -3x^2y^3$

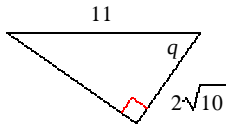
25) $3n^{\frac{1}{4}} \cdot n^{\frac{5}{4}}$

26) $\left(m^{\frac{3}{2}}\right)^3$

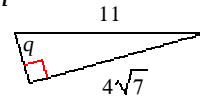
27) $\sqrt[3]{16}$

Find the exact value of the trig function indicated.

28) $\sin q$



29) $\cos q$

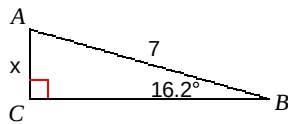


30) Find $\tan q$ if $\cos q = \frac{12}{13}$

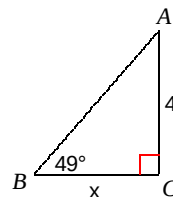
31) Find $\sin q$ if $\cos q = \frac{2\sqrt{5}}{25}$

Find the measure of each side indicated. Round to the nearest tenth.

32)

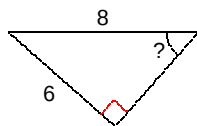


33)

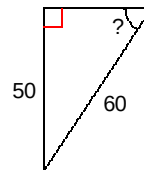


Find the measure of the indicated angle to the nearest degree.

34)

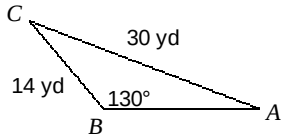


35)



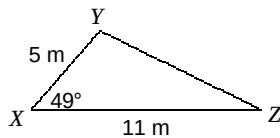
Find each measurement indicated. Round to the nearest tenth.

36) Find $m\angle A$



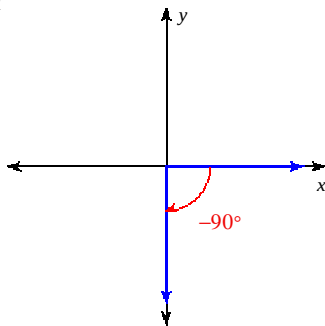
Find the area of each triangle to the nearest tenth.

37)

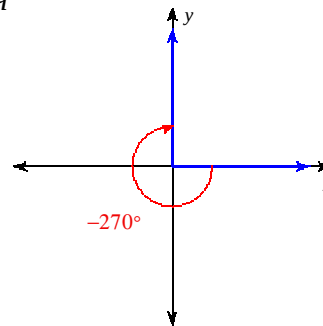


Find the exact value of each trigonometric function.

38) $\cos q$



39) $\tan q$



40) Find the distance between the two points and the coordinates of the midpoint of the line segment between the two points: (5,1), (5,11).

41) If \$20,000 is invested at an interest rate of 5% for 30 years, find the total amount of the investment if the interest is (a) compounded quarterly, and (b) continuously compounded.

Use the information provided to write the standard form equation of each circle.

42) Center: (0, 0)
Radius: 7

43) Center: (2, 7)
Radius: 11

Expand each logarithm using the "rules for logarithms."

44) $\log_3 (x \cdot y)^2$

45) $\log_9 (xy^6)$

Condense each expression to a single logarithm using the "rules for logarithms."

46) $\log_7 x + 2\log_7 y$

47) $\log_8 x + \log_8 y + \log_8 z$

Solve each equation.

48) $\log_{13} (-3x - 6) = \log_{13} (5 - 2x)$

49) $7^{b+5} = 37$

Answers to Practice for Semester 1 Exam

1) 3

5) $-4x - 5$

9) $y = \frac{7}{2}x + 2$

2) $4n + 10$

6) $a^2 + 8$

10) $y = 6x + 3$

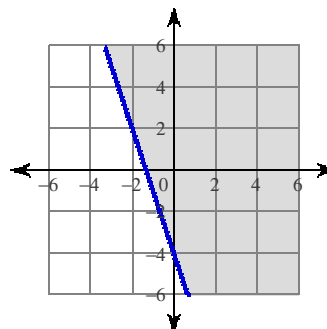
3) $-6n - 1$

7) $y = x - 3$

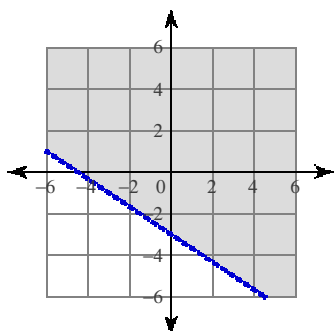
11)

4) $12a^2 + 12a$

8) $y = 1$



12)



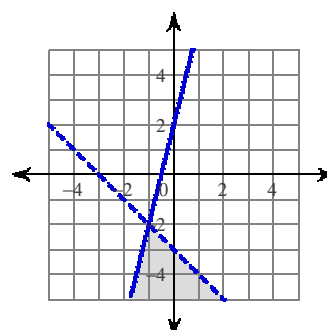
13) (3, 3)

14) (-2, -2)

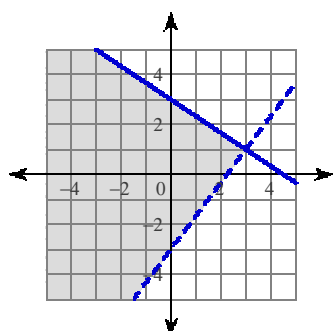
15) 10

16) 3

17)



18)



19) $\{-8, -5\}$

20) $\left[\frac{1}{2}, -\frac{1}{5}\right]$

21) -44; two imaginary solutions

22) -19; two imaginary solutions

23) $\left[-1, -\frac{3}{2}\right]$

24) $-12x^5y^5$

25) $3n^{\frac{3}{2}}$

26) $m^{\frac{9}{2}}$

27) $2\sqrt[3]{2}$

28) $\frac{9}{11}$

29) $\frac{3}{11}$

30) $\frac{5}{12}$

31) $\frac{11\sqrt{5}}{25}$

32) 2

33) 3.5

34) 49°

35) 56°

36) 20.9°

37) 20.8 m²

38) 0

39) Undefined

40) 10; (5, 6)

41) (a) \$88,804 (b) \$89,634

42) $x^2 + y^2 = 49$

$$\begin{array}{llll}
 43) (x-2)^2 + (y-7)^2 = 121 & 44) 2\log_3 x + 2\log_3 y & 45) \log_9 x + 6\log_9 y & \\
 46) \log_7 (xy^2) & 47) \log_8 zyx & 48) \{-11\} & 49) -3.1444
 \end{array}$$