Module E Review

Evaluate each function.

1) $p(n) = -n^2 + 5n$; Find $p(-6)$

2) $p(x) = 4x + 5$; Find $p(-7)$

3) $k(x) = |3x| - 1$; Find $k(-8)$

4) $k(a) = |-a - 1| - 3$; Find $k(a^2)$

5) $k(t) = t^2 + 5$; Find $k(-1 - t)$

6) $h(x) = x + 5$; Find $h(-2x)$

Perform the indicated operation.

7) $g(n) = 2n - 1$
   $f(n) = n^2 + 2$
   Find $(g \cdot f)(4)$

8) $g(n) = 4n + 1$
   $f(n) = 4n - 5$
   Find $(g - f)(-9)$

9) $h(x) = 3x - 5$
   $g(x) = x^3 + 5x$
   Find $\left(\dfrac{h}{g}\right)(10)$

10) $h(a) = 2a - 2$
    $g(a) = 2a + 3$
    Find $h(5) \cdot g(5)$

11) $g(x) = -4x - 2$
    $h(x) = -x + 4$
    Find $(g + h)(4)$

12) $g(n) = n^2 - 3n$
    $h(n) = n + 5$
    Find $(g + h)(-4)$

13) $f(n) = 4n - 2$
    $g(n) = n^2 + 3n$
    Find $f(-6) - g(-6)$

14) $g(x) = x + 3$
    $h(x) = -2x^2 + 5x$
    Find $\left(\dfrac{g}{h}\right)(-6)$

15) $g(n) = -n - 4$
    $h(n) = n^3 - 4n^2$
    Find $(g - h)(n)$

16) $f(t) = 2t - 3$
    $g(t) = t^3 + 3t$
    Find $(f \cdot g)(t)$

17) $g(n) = 4n - 5$
    $h(n) = -n^2 - n$
    Find $g(n) - h(n)$

18) $f(n) = n^3 - 5n$
    $g(n) = 4n + 3$
    Find $(f + g)(n)$

19) $g(a) = a + 4$
    $h(a) = a - 1$
    Find $g(a) \cdot h(a)$

20) $f(t) = t^2 + 5t$
    $g(t) = 3t + 2$
    Find $\left(\dfrac{f}{g}\right)(t)$

21) $g(x) = -x^3 - 3x^2$
    $h(x) = -3x$
    Find $\left(\dfrac{g}{h}\right)(x)$

22) $f(n) = 2n$
    $g(n) = n^2 - 3n$
    Find $f(n) + g(n)$

23) $g(t) = -t - 2$
   Find $(g \circ g)(1)$

24) $g(x) = 2x + 3$
   Find $(g \circ g)(-9)$

25) $g(x) = x - 3$
   $f(x) = 4x + 5$
   Find $(g \circ f)(-4)$

26) $g(x) = -3x + 1$
   $f(x) = 2x + 5$
   Find $(g \circ f)(x)$

27) $f(t) = t - 1$
   $g(t) = t^3 + 4t$
   Find $(f \circ g)(t)$

28) $h(t) = 2t + 3$
   $g(t) = -t + 2$
   Find $(h \circ g)(t)$

Give the domain.

29) $\dfrac{m^2 - 10m + 9}{m^2 - 8m - 9}$

30) $\dfrac{r^2 - 9}{r^2 + 2r - 15}$

31) $\dfrac{12x + 12}{42x + 48}$

32) $y = 2\sqrt{x + 1} - 5$

33) $y = \dfrac{1}{2}\sqrt{x + 1}$

34) $y = \sqrt{x + 6} + 1$

Graph the function.

35) $f(x) = x^2 - 2x - 8$

36) $f(x) = 2x^2 - 12x + 10$

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

38) $f(x) = -2x^2 + 16x - 24$

Sketch the Graph of each function

39) $f(x) = x^2$

40) $f(x) = |x|$

41) $f(x) = x^3$

42) $f(x) = a^x$

43) $f(x) = \sqrt{x}$

44) $f(x) = \log_a x$

Calculate the balance of each account.

45) You borrow $1500 at 4% interest compounded monthly for 5 years. What do you owe at the end of the 5 years? (assuming no payments or late fees are made in that 5 years)

46) You invest $250 in an account paying 9% interest compounded continuously for 35 years. What is the balance in the account at the end of the 35 years?

47) What is the final balance of a 4 year investment of $300 at 6% compounded quarterly?

48) A loan of $25,000 is taken out on a car at 3.5% interest compounded continuously. If no payments are needed for the first three years, what is owed at the end of the three years?

Solve each equation.

49) $125^{2v} = 5^2$

50) $\left(\dfrac{1}{16}\right)^{3b-2} = 64$

51) $64^{-2x-2} = 16^{-3x}$

52) $25^{a-2} = 125^{a-1}$

53) $64^{-3k} = \dfrac{1}{8}$

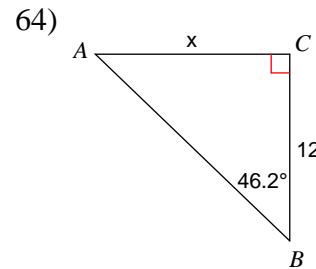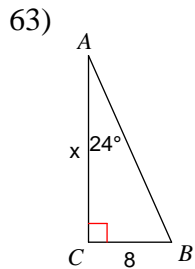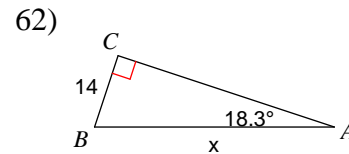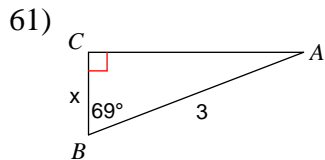54) $\left(\dfrac{1}{5}\right)^{-2x} = \left(\dfrac{1}{25}\right)^{-x}$

55) $\log_7 r = 4$

56) $\log_4 x = 1$
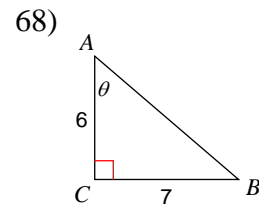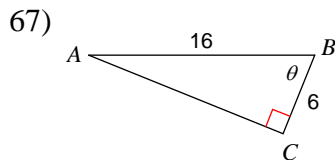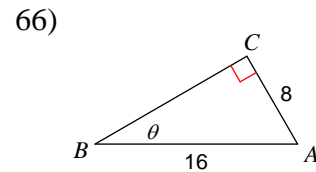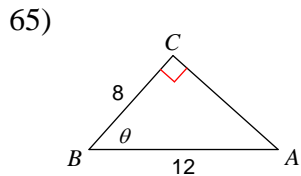
57) $\log_{12} n = -1$

58) $\log_8 b = 3$

59) $\log_2 10n = 3$

60) $\log(-8m - 1) = -1$

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

61)

62)

63)

64)

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

65)

66)

67)

68)

Find the inverse of each function.

69) $f(x) = 2x^3 + 3$

70) $g(n) = -\dfrac{3}{n-2} - 2$

71) $f(n) = \sqrt[5]{n+3} - 1$

72) $f(x) = \dfrac{2}{x-1} - 3$

Answers to Module E Review

1) -66

2) -23

3) 23

4) $\left|-a^2 - 1\right| - 3$

5) $6 + 2t + t^2$

6) $-2x + 5$

7) 126

8) 6

9) $\dfrac{1}{42}$

10) 104

11) -18

12) 29

13) -44

14) $\dfrac{1}{34}$

15) $-n^3 + 4n^2 - n - 4$

16) $2t^4 - 3t^3 + 6t^2 - 9t$

17) $n^2 + 5n - 5$

18) $n^3 - n + 3$

19) $a^2 + 3a - 4$

20) $\dfrac{t^2 + 5t}{3t + 2}$

21) $\dfrac{x^2 + 3x}{3}$

22) $n^2 - n$

23) 1

24) -27

25) -14

26) $-6x - 14$

27) $t^3 + 4t - 1$

28) $-2t + 7$

29) x not equal to -1, 9

30) r not equal to -5, 3

31) x not equal to -8/7

32) Domain: $x \geq -1$

33) Domain: $x \geq -1$

34) Domain: $x \geq -6$

35) V (1, -9), X-Int (4, 0) and (-2, 0), Y-Int (0, -8)

36) V (3, -8), X-Int (1, 0) and (5, 0), Y-Int (0, 10)

37) V (2, 9), X-Int (-1, 0) and (5, 0), Y-Int (0, 5)

38) V (4, 8), X-Int (2, 0) and (6, 0), Y-Int (0,-24)

39) See your notes.

40) See your notes.

41) See your notes.

42) See your notes.

43) See your notes.

44) See your notes.

45) $1831.49

46) $5834.01

47) $380.69

48) $27,767.76

49) $\left\{\dfrac{1}{3}\right\}$

50) $\left\{\dfrac{1}{6}\right\}$

51) No solution.

52) $\{-1\}$

53) $\left\{\dfrac{1}{6}\right\}$

54) { All real numbers. }

55) $\{2401\}$

56) $\{4\}$

57) $\left\{\dfrac{1}{12}\right\}$

58) $\{512\}$

59) $\left\{\dfrac{4}{5}\right\}$

60) $\left\{-\dfrac{11}{80}\right\}$

61) 1.1

62) 44.6

63) 18

64) 12.5

65) $48.2°$

66) $30°$

67) $68°$

68) $49.4°$

69) $f^{-1}(x) = \sqrt[3]{\dfrac{x-3}{2}}$

70) $g^{-1}(n) = -\dfrac{3}{n+2} + 2$

71) $f^{-1}(n) = (n+1)^5 - 3$

72) $f^{-1}(x) = \dfrac{2}{x+3} + 1$