

**Summer Review Packet**

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**Evaluate each function.**

1)  $w(x) = x^2 + 4$ ; Find  $w(-1)$

2)  $h(t) = -2 \cdot 4^{2t}$ ; Find  $h(0)$

3)  $g(x) = |x + 3| + 3$ ; Find  $g(6)$

4)  $f(t) = -t^3 - 1$ ; Find  $f(4)$

5)  $k(n) = 3n + 3$ ; Find  $k(-3n)$

6)  $f(n) = 3n^3 - 4$ ; Find  $f(3 - n)$

**Find the inverse of each function.**

7)  $g(x) = \frac{1}{7}x + \frac{31}{7}$

8)  $g(x) = \sqrt[5]{\frac{x}{2}}$

**Perform the indicated operation.**

9)  $g(x) = 3x - 2$   
 $f(x) = x^3 - 2 + x$   
Find  $g(f(x))$

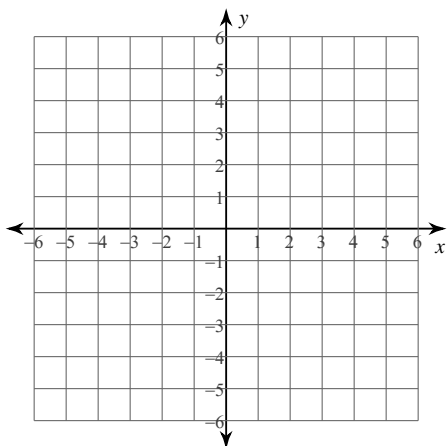
10)  $g(a) = 4a + 4$   
 $f(a) = a^3 - 3a^2$   
Find  $g(a) \cdot f(a)$

11)  $f(x) = -x^2 + 4$   
 $g(x) = -3x - 4$   
Find  $f(x) + g(x)$

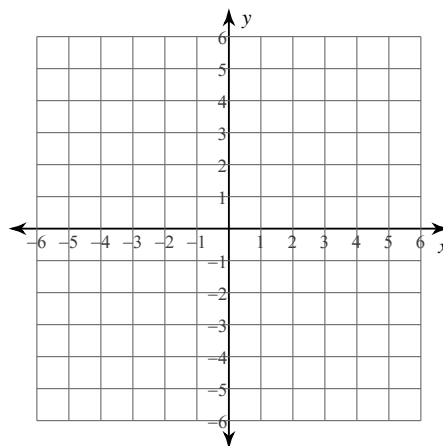
12)  $g(x) = x - 3$   
 $h(x) = x^3 + 2$   
Find  $2g(x) + 4h(x)$

**Sketch the graph of each line.**

13)  $3x + y = 5$

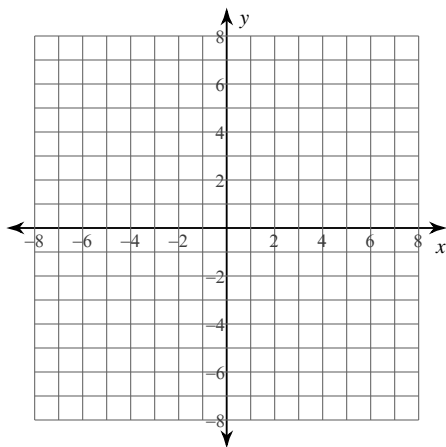


14)  $4x - 3y = -3$

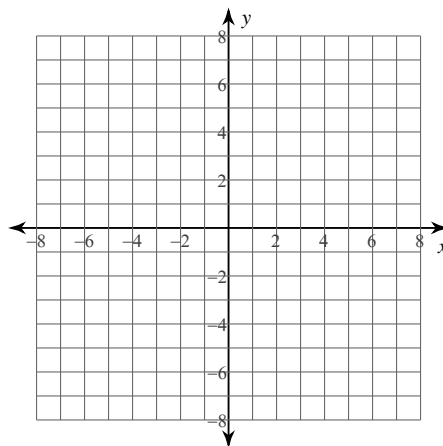


Identify the vertex and axis of symmetry of each. Then sketch the graph.

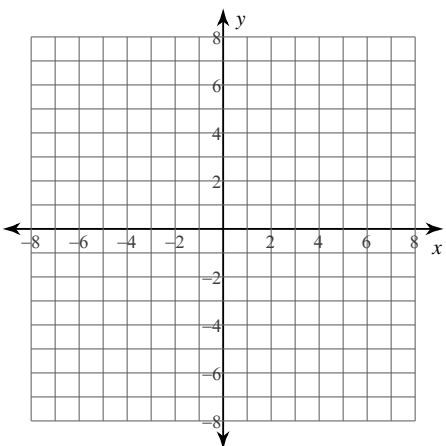
15)  $y = 2(x + 2)^2 - 1$



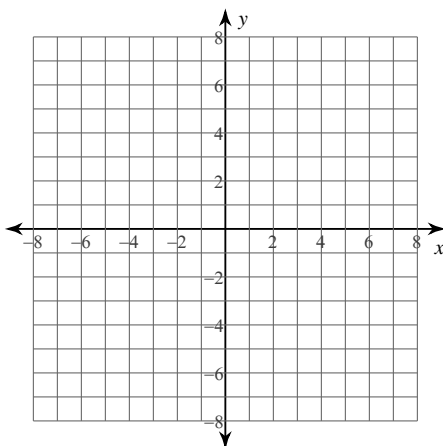
16)  $y = -\frac{1}{3}(x - 4)^2 + 2$



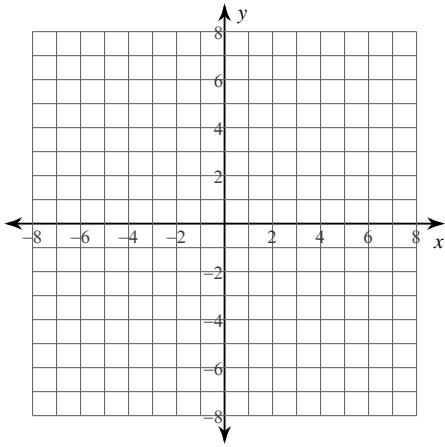
17)  $y = x^2 - 12x + 30$



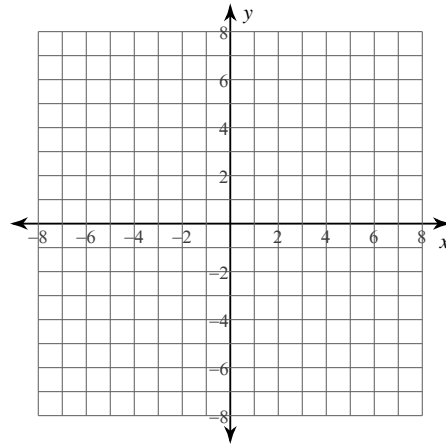
18)  $y = x^2 - 2x - 5$



19)  $y = 2x(x - 4)$

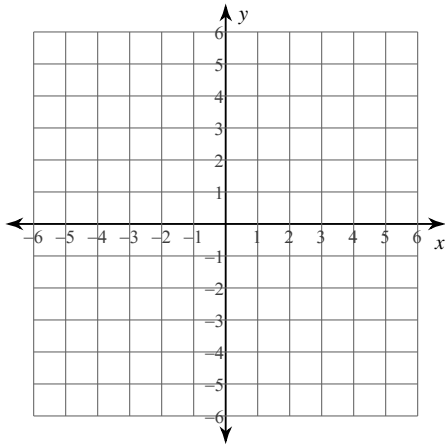


20)  $y = -(x - 2)(x + 2)$

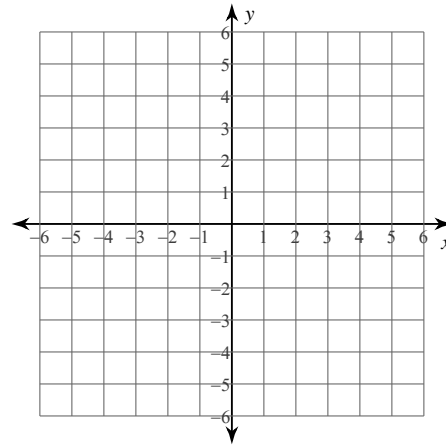


**Graph each equation.**

21)  $y = |x - 3| - 2$

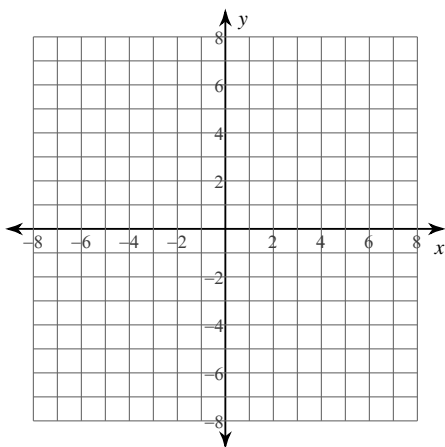


22)  $y = |x + 2| - 4$

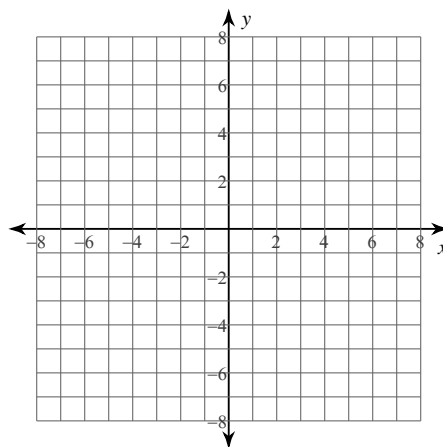


Identify the vertical asymptotes, x-intercepts, horizontal asymptote, and domain of each. Then sketch the graph.

23)  $f(x) = \frac{x^2 - x - 12}{x^2 - 4}$



24)  $f(x) = \frac{1}{x^2 + 2x - 3}$



Find the value of each. Round your answers to the nearest ten-thousandth.

25)  $\cos 40^\circ$

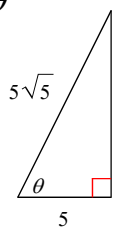
26)  $\tan 25^\circ$

27)  $\cos 55^\circ$

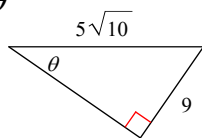
28)  $\sin 50^\circ$

Find the value of the trig function indicated.

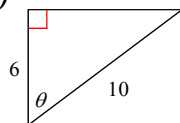
29)  $\tan \theta$



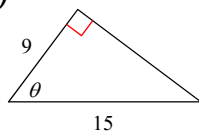
30)  $\cos \theta$



31)  $\cos \theta$

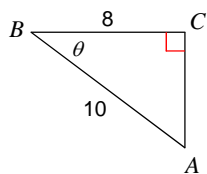


32)  $\sin \theta$

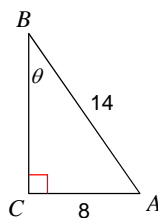


Find the measure of each angle indicated. Round to the nearest tenth.

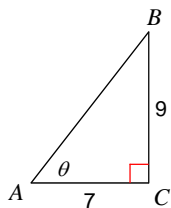
33)



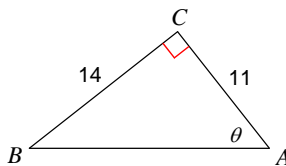
34)



35)

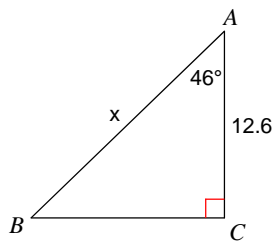


36)

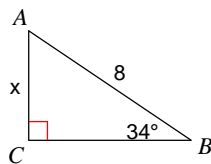


Find the measure of each side indicated. Round to the nearest tenth.

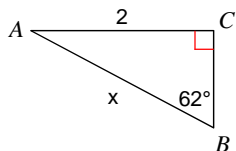
37)



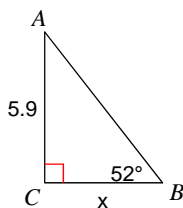
38)



39)



40)



Evaluate each expression.

41)  $\log_7 49$

42)  $\log_3 27$

43)  $\log_2 16$

44)  $\log_6 \frac{1}{36}$

**Expand each logarithm using the properties of logs.**

45)  $\log_6 \sqrt[3]{x \cdot y \cdot z}$

46)  $\log_5 (8^3 \cdot 11^3)$

47)  $\log_5 (c^5 \sqrt{a})$

48)  $\log_5 \left(\frac{a^2}{b}\right)^6$

49)  $\log_3 (5^6 \sqrt[3]{12})$

50)  $\log_7 (5^4 \cdot 8^2)$

**Condense each expression to a single logarithm.**

51)  $20\log_3 12 - 5\log_3 7$

52)  $\log_6 z + \frac{\log_6 x}{2} + \frac{\log_6 y}{2}$

53)  $\log_2 x + \log_2 y + 6\log_2 z$

54)  $4\ln 12 + 3\ln 7$

**Use a calculator to approximate each to the nearest thousandth.**

55)  $\log_7 5.1$

56)  $\log_4 3.5$

57)  $\log_7 1.3$

58)  $\log_4 4.7$



**Factor each completely.**

59)  $a^2 - 10a + 21$

60)  $n^2 - 11n + 10$

61)  $k^3 + 9k^2$

62)  $b^3 - 15b^2 + 50b$

63)  $3n^2 - 32n + 45$

64)  $5n^2 + 42n - 80$

65)  $2n^2 - 17n - 9$

66)  $3k^2 - 11k + 10$

67)  $9x^2 - 61x - 14$

68)  $10x^2 + 17x + 6$

69)  $50p^2 + 135p - 140$

70)  $12m^2 + 36m + 15$

71)  $1 - 125x^3$

72)  $a^3 + 1$

**Factor each completely by grouping.**

73)  $8n^3 - 8n^2 + 5n - 5$

74)  $40b^3 - 25b^2 - 56b + 35$

**Solve each equation by factoring.**

75)  $n^2 + n - 56 = 0$

76)  $x^2 - 2x - 24 = 0$

77)  $r^2 + 8 = -9r$

78)  $m^2 - 32 = 4m$

**Solve each equation with the quadratic formula.**

79)  $10k^2 + 7k + 5 = 0$

80)  $5x^2 - 23 = 0$

**Solve each equation by completing the square.**

81)  $k^2 + 12k - 23 = 5$

82)  $p^2 - 10p - 90 = 6$