

Summer Work

Period _____

Solve each equation.

1) $-4(-5x - 7) = 8x + 16$

- A) $\{-7\}$ B) $\{1\}$
 C) $\{-1\}$ D) $\{-16\}$

2) $-4(-5x - 7) = 7x - 37$

- A) $\{-5\}$ B) $\{-2\}$
 C) $\{-14\}$ D) $\{16\}$

Simplify each expression.

3) $(n^4 - n^3 - 2) - (3 - 5n + 2n^3)$

- A) $n^4 - 3n^3 + 5n - 5$
 B) $7n^4 - 3n^3 + 5n - 5$
 C) $7n^4 - 3n^3 + 5n$
 D) $n^4 - 3n^3 + 5n$

4) $(p^3 + 5 + 4p^4) - (3 - 8p^3 - 2p^4)$

- A) $4p^4 + 2p^3 + 2$
 B) $6p^4 + 9p^3 + 2$
 C) $3p^4 + 2p^3 + 2$
 D) $6p^4 + 2p^3 + 2$

Simplify.

5) $2\sqrt{128}$

- A) $30\sqrt{2}$ B) -54
 C) $32\sqrt{7}$ D) $16\sqrt{2}$

6) $3\sqrt{400}$

- A) $20\sqrt{3}$ B) $12\sqrt{5}$
 C) $50\sqrt{10}$ D) 60

7) $2\sqrt{36}$

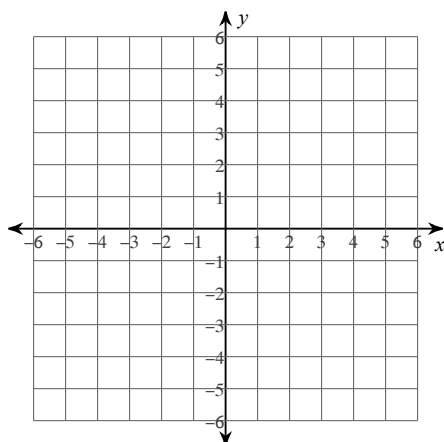
- A) 12 B) $-100\sqrt{2}$
 C) $-8\sqrt{210}$ D) 96

8) $3\sqrt{729}$

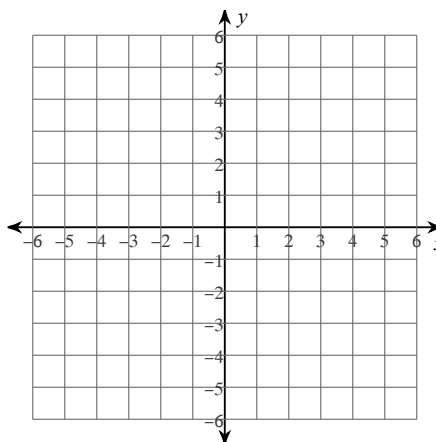
- A) $5\sqrt{30}$ B) $-90\sqrt{2}$
 C) 81 D) $8\sqrt{3}$

Sketch the graph of each line.

9) $x = 1$

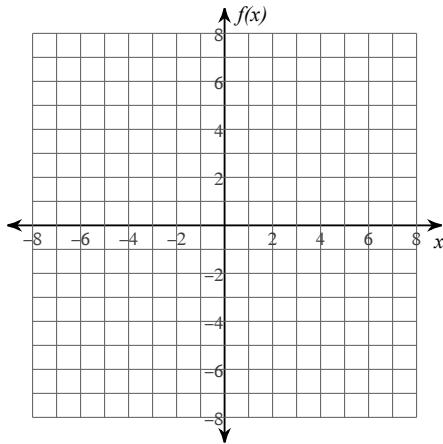


10) $y = \frac{1}{2}x + 1$

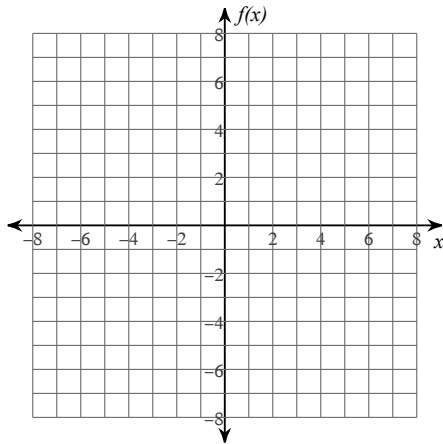


Graph each function. State any transformations.

11) $f(x) = 2|x - 3|$

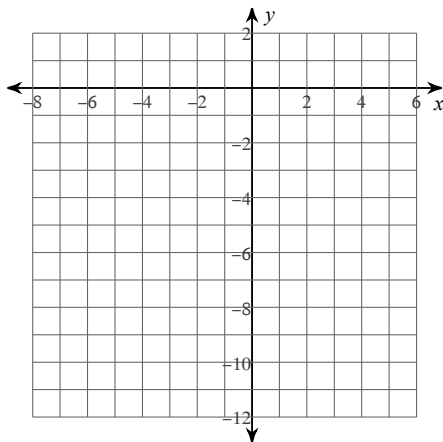


12) $f(x) = 2|x - 3| - 1$

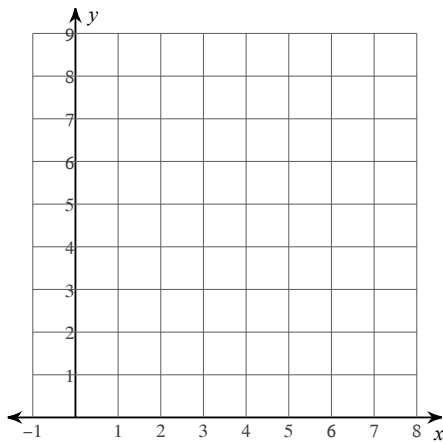


Sketch the graph of each function.

13) $y = -3(x + 1)^2 + 1$



14) $y = (x - 4)^2 + 4$



Solve each equation by factoring.

15) $v^2 + 7v + 12 = 0$

- A) $\{1, 2\}$ B) $\{4, 0\}$
C) $\{2\}$ D) $\{-4, -3\}$

16) $n^2 + n - 20 = 0$

- A) $\{-4, 5\}$ B) $\{4, -5\}$
C) $\{-3, 1\}$ D) $\{5\}$

17) $2v^2 - 11v + 16 = 4$

- A) $\left\{-\frac{1}{5}, 4\right\}$ B) $\left\{\frac{4}{5}, 4\right\}$
C) $\left\{-\frac{3}{5}, 0\right\}$ D) $\left\{\frac{3}{2}, 4\right\}$

18) $3r^2 - 10r + 11 = 3$

- A) $\left\{-\frac{4}{3}, -2\right\}$ B) $\left\{\frac{1}{4}, 4\right\}$
C) $\left\{\frac{4}{3}, 2\right\}$ D) $\left\{\frac{4}{3}, -\frac{4}{5}\right\}$

Solve each equation by completing the square.

19) $x^2 + 4x - 68 = -8$

- A) $\{-8, -12\}$
B) $\{9, -11\}$
C) $\{9 + \sqrt{109}, 9 - \sqrt{109}\}$
D) $\{6, -10\}$

20) $x^2 + 16x + 53 = 5$

- A) $\{9 + 2\sqrt{43}, 9 - 2\sqrt{43}\}$
B) $\{-7 + 3\sqrt{10}, -7 - 3\sqrt{10}\}$
C) $\{6, -2\}$
D) $\{-4, -12\}$

Solve each equation with the quadratic formula.

21) $6x^2 - 77 = -x$

- A) $\left\{\frac{31}{6}, -4\right\}$
 B) $\left\{\frac{7 + 3\sqrt{21}}{14}, \frac{7 - 3\sqrt{21}}{14}\right\}$
 C) $\left\{\frac{7}{2}, -\frac{11}{3}\right\}$
 D) $\left\{\frac{7 + i\sqrt{2927}}{12}, \frac{7 - i\sqrt{2927}}{12}\right\}$

22) $6r^2 = -4r + 15$

- A) $\left\{\frac{2 + \sqrt{94}}{6}, \frac{2 - \sqrt{94}}{6}\right\}$
 B) $\left\{2 + \sqrt{19}, 2 - \sqrt{19}\right\}$
 C) $\left\{\frac{-2 + \sqrt{94}}{6}, \frac{-2 - \sqrt{94}}{6}\right\}$
 D) $\left\{\frac{2 + i\sqrt{86}}{6}, \frac{2 - i\sqrt{86}}{6}\right\}$

Factor each completely.

23) $10n^3 - 6n^2 - 20n + 12$

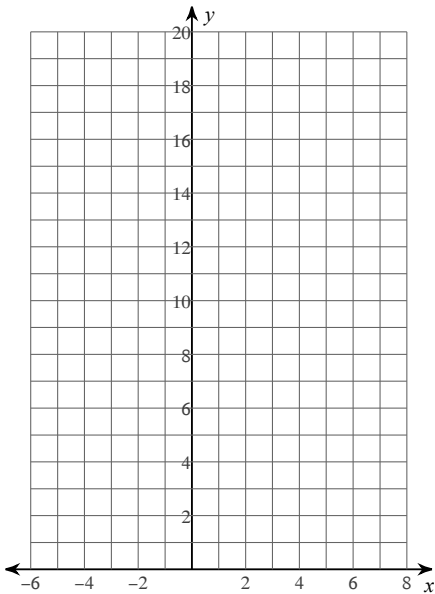
- A) $2(n^2 - 2)(n^2 + 3)$
 B) $2(n^2 - 3)(5n - 2)$
 C) $(5n - 2)(n^2 - 3)$
 D) $2(n^2 - 2)(5n - 3)$

24) $24x^3 + 40x^2 + 18x + 30$

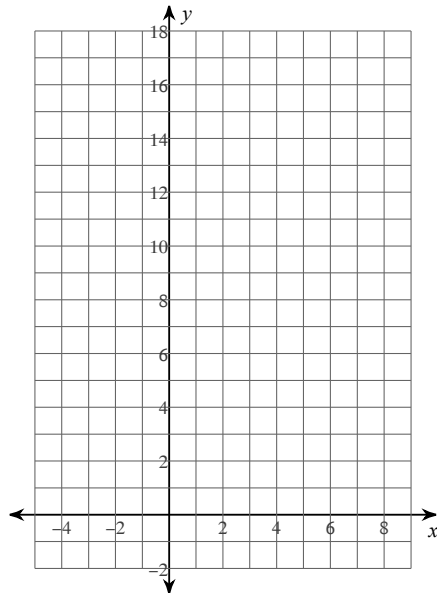
- A) $6(4x^2 + 5)(x - 1)$
 B) $6(4x^2 + 3)(x - 1)$
 C) $(4x^2 - 3)(3x + 5)$
 D) $2(4x^2 + 3)(3x + 5)$

Sketch the graph of each function.

25) $f(x) = \left(\frac{1}{2}\right)^{x-1} + 1$



26) $f(x) = 2^{x-2} - 2$



Find each product.

27) $(6x + 7)(5x - 2)$

- A) $30x^2 - 14$
 B) $30x^2 + 47x + 14$
 C) $30x^2 - 47x + 14$
 D) $30x^2 + 23x - 14$

28) $(2n + 3)(8n^2 - 8n - 5)$

- A) $16n^3 + 8n^2 - 34n - 15$
 B) $7n^3 - 22n^2 + 4n - 3$
 C) $30n^3 + 43n^2 - 15n - 25$
 D) $12n^3 + 56n^2 + 56n - 16$

29) $(x + 6)^2$

- A) $x^2 + 16x + 64$
- B) $x^2 + 36$
- C) $x^2 - 36$
- D) $x^2 + 12x + 36$

30) $(2a - 4)(2a + 4)$

- A) $4a^2 - 16$
- B) $25a^2 - 49$
- C) $25a^2 - 30a + 9$
- D) $4a^2 - 16a + 16$

31) $(5x - 2)(5x + 2)$

- A) $25x^2 + 20x + 4$
- B) $25x^2 - 64$
- C) $25x^2 - 4$
- D) $25x^2 - 20x + 4$

32) $(2p - 4)^2$

- A) $4p^2 - 16p + 16$
- B) $4p^2 + 16$
- C) $4p^2 - 16$
- D) $36p^2 - 9$

Divide.

33) $(p^3 - 6p^2 - 25p + 2) \div (p + 3)$

- A) $p^2 - 9p - \frac{9}{p+3}$
- B) $p^2 - 9p + 5 - \frac{8}{p+3}$
- C) $p^2 - 9p + 2 - \frac{3}{p+3}$
- D) $p^2 - 9p + 2 - \frac{4}{p+3}$

34) $(p^3 - 8p^2 - 3p + 78) \div (p - 7)$

- A) $p^2 - 10 + \frac{11}{p-7}$
- B) $p^2 - 10 + \frac{7}{p-7}$
- C) $p^2 - p - 10 + \frac{8}{p-7}$
- D) $p^2 - 11 + \frac{12}{p-7}$

Simplify each expression.

35) $\frac{10(n+3)}{2} \cdot \frac{2}{10(n-8)}$

36) $\frac{(m+9)(m+2)}{10(m+2)} \div \frac{m-1}{10}$

37) $\frac{6y}{24xy^2} + \frac{x-6y}{24xy^2}$

- A) $\frac{1}{24y^2}$
- B) $\frac{1+3x}{24xy^2}$
- C) $\frac{2+3x}{24xy^2}$
- D) $\frac{1+x}{24xy^2}$

38) $\frac{5u}{36u^2} - \frac{2}{36u^2}$

- A) $\frac{5}{648u^3}$
- B) $\frac{3u-1}{18u^2}$
- C) $\frac{5u-2}{36u^2}$
- D) $\frac{6u+1}{648u^4}$

Find the inverse of each function.

39) $f(x) = -5x + 20$

A) $f^{-1}(x) = \frac{-5x + 10}{2}$

B) $f^{-1}(x) = -x - 1$

C) $f^{-1}(x) = \frac{2x + 4}{7}$

D) $f^{-1}(x) = \frac{20 - x}{5}$

40) $f(x) = -x + 3$

A) $f^{-1}(x) = 3x - 2$

B) $f^{-1}(x) = -2x + 6$

C) $f^{-1}(x) = -4 + \frac{3}{4}x$

D) $f^{-1}(x) = -x + 3$

Simplify.

41) $2 \cdot -3i(1 + 8i)$

A) $48 - 6i$

B) $72 - 27i$

C) $-48 + 6i$

D) $-48 - 6i$

42) $(2 - 2i)(-6 - 3i)$

A) $-6 - 3i$

B) $-18 + 6i$

C) $18 + 6i$

D) $-6 + 18i$

43) $(5 + 3i)^2$

A) $27 + 36i$

B) 64

C) $16 - 30i$

D) $16 + 30i$

44) $1 - 6i - 1 - 5i$

A) $-2 + i$

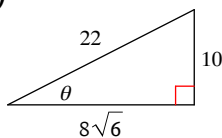
B) $-2 - 11i$

C) $-11i$

D) $-5 - 6i$

Find the value of the trig function indicated.

45) $\cos \theta$



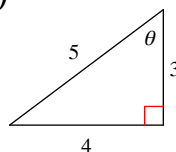
A) $\frac{4\sqrt{6}}{5}$

B) $\frac{4\sqrt{6}}{11}$

C) $\frac{5\sqrt{6}}{24}$

D) $\frac{11}{5}$

46) $\sin \theta$



A) $\frac{4}{5}$

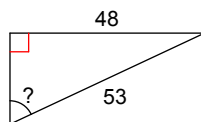
B) $\frac{4}{3}$

C) $\frac{3}{4}$

D) $\frac{\sqrt{5}}{5}$

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

47)



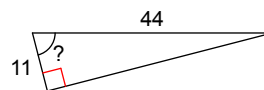
A) 65°

B) 25°

C) 42°

D) 48°

48)



A) 49°

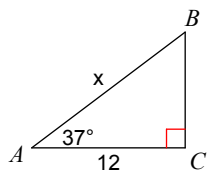
B) 89°

C) 14°

D) 76°

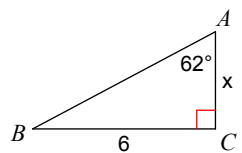
Find the measure of each side indicated. Round to the nearest tenth.

49)



- A) 18.5 B) 14.2
C) 13.1 D) 15

50)



- A) 3.9 B) 3.6
C) 2.5 D) 3.2