

Section 2-1: Writing Algebraic Equations

Write each as an algebraic expression.1) x decreased by 3 is 332) 26 less than n is 233) the n power of 13 is equal to 464) n squared is 425) x cubed is equal to 176) n minus 7 is 137) 10 more than x is equal to 388) x plus 10 is equal to 499) twice k is equal to 44

10) a number increased by 12 is 49

Write each as a verbal expression.11) $n^2 = 8$ 12) $q + 7 = 42$ 13) $2n = 10$ 14) $\frac{v}{2} = 22$ 15) $x + 11 = 47$ 16) $x - 10 = 7$ 17) $n \cdot 10 = 17$ 18) $n - 3 = 40$ 19) $n - 10 = 47$ 20) $n - 11 = 19$

Section 2-2: Algebraic Equations

Solve each equation.

1) $23 = k + 18$

2) $20 = b + 12$

3) $b + 15 = 18$

4) $x + 17 = 11$

5) $-6 + x = -14$

6) $-14 = -10 + a$

7) $n - -13 = 25$

8) $3 = m - -16$

9) $r - 16 = -28$

10) $n - 2 = -16$

11) $x - 3.7 = 7$

12) $-4.3 = 9.8 + b$

13) $-14.1 + n = -10.2$

14) $3.5 = x - -8.1$

15) $\frac{35}{4} = k + 9\frac{1}{4}$

16) $-\frac{4}{5} = v - \frac{4}{5}$

17) $x - -\frac{3}{2} = \frac{27}{4}$

18) $-\frac{2}{33} = n + \frac{2}{3}$

19) If $x - 7 = 14$, what does $x - 2$ equal?

20) If $t + 8 = -12$, what would $t + 1$ equal?

21) Jesse is comparing the price of two different energy bars at the store. He wants to get the best price per bar. He can get 12 of the first brand for \$18, or he can get 15 of the second brand for \$21.75.

a) Write and solve an equation for the price per bar of the first brand.

b) Write and solve an equation for the price per bar of the second brand.

c) Which bar should Jesse buy?

22) Which situation described below could the equation $w - 15 = 33$ represent?

A) Jake added w ounces of water to his water bottle, which originally contained 33 ounces of water. How much water did he add?

B) Jake added 15 ounces of water to his water bottle, for a total of 33 ounces. How much water was originally in the bottle?

C) Jake drank 15 ounces of water from his water bottle, and 33 ounces were left. How much water was originally in the bottle?

D) Jake drank 15 ounces of water from his water bottle, which originally contained 33 ounces. How much water is left?

Section 2-3: Algebraic Equations

Solve each equation.

1) $4n + 6 - 7n = 15$

2) $6p - 4p = -4$

3) $-2m - 6m = 0$

4) $0 = -7x - 4x$

5) $-20 = 4 - 4a - 8a$

6) $-4 = 3n - 7n$

7) $4 = 6a - 2 - 3a$

8) $16 = 5x + 3x$

9) $2 = \frac{8+x}{2}$

10) $-1 = \frac{b}{3} + 2$

11) $-3 = -1 + \frac{v}{8}$

12) $4 + \frac{x}{2} = 13$

13) $8 = -2 + \frac{x}{2}$

14) $-2 = \frac{p+2}{9}$

15) $\frac{8+b}{9} = 3$

16) $\frac{n}{-3} - 10 = -7$

17) $-168 = -4(-6 + 8n)$

18) $5k - 2(-3k + 3) = -94$

Section 2-4: Algebraic Equations

Solve each equation.

1) $6 + 7m + 8 = 8 + 8m$

2) $a + 3 = -8a + 12$

3) $-4 - x = 2x - 2x$

4) $4n + 2 = -14 + 2n$

5) $7x + 3 = -4x + 8x + 9$

6) $-3 + 6b = 2b - 4b + 13$

7) $-1 + k = 3 - 3k + 2k$

8) $3x - 3 = 3 + 4x$

9) $-15 - 8n = -6n - 5n$

10) $-16 + 7x = 2x + 4$

11) $2.6n + 0.9 = -15.63 - 0.3n$

12) $-10.44 + 1.6m = -7.6m + 7.4m$

13) $\frac{2}{3}x - \frac{5}{3} = x - \frac{3}{2}$

14) $-\frac{7}{4}n + \frac{5}{4}n = \frac{1}{5}n - \frac{28}{5}$

15) $-40 - 8x = 8(7 - 6x) + 8x$

16) $6m - 40 = -4 - 6(1 - 6m)$

17) $3(-a - 3) - 5a = -8 - 7a$

18) $-2x - 8(1 + 3x) = -8 - 4x$

Section 10-4: Algebraic Equations

Solve each equation.

1) $x^2 = 49$

2) $r^2 = 67$

3) $x^2 + 3 = 19$

4) $n^2 + 2 = 94$

5) $81r^2 = 81$

6) $-5n^2 = -260$

7) $x^2 - 3 = 1$

8) $m^2 - 3 = 36$

9) $4n^2 - 10 = 6$

10) $10x^2 - 10 = 280$

11) $1 = \sqrt{p+9}$

12) $\sqrt{\frac{v}{9}} = 2$

13) $\sqrt{x+5} = 10$

14) $\sqrt{16n} = 8$

15) $\sqrt{2x-1} - 1 = 0$

16) $7\sqrt{2x+36} = 28$

17) $6\sqrt{-6-6r} = 36$

18) $16 = \sqrt{m+8} + 10$

19) $\sqrt{21-x} = \sqrt{x-7}$

20) $\sqrt{3m} = \sqrt{2m+1}$

Section 2-5: Algebraic Equations

Solve each equation.

1) $|n| = 1$

2) $|k| = 7$

3) $-10 + |x| = -5$

4) $6|x| = 36$

5) $-3 + 8|b| = 77$

6) $3 - |x| = -5$

7) $\left|\frac{p}{8}\right| = 3$

8) $\left|\frac{v}{5}\right| = 1$

9) $|10n + 2| = 92$

10) $|3n - 9| = 30$

11) $9|n - 1| = 9$

12) $\frac{|8x|}{7} = 3$

13) $-6|3x - 7| - 5 = -53$

14) $-10 - 2|2 + 5n| = -46$

15) $|n| + 3.9 = 9$

16) $|n - 5.1| - 3 = -1.9$

17) $\frac{1}{4} \cdot |n| = \frac{7}{24}$

18) $\left|x + \frac{9}{7}\right| - \frac{11}{7} = \frac{5}{7}$