openstax™

Pre-alg-ebra

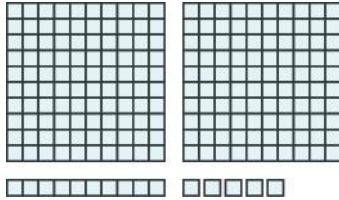## *Prealgebra*
Ch 1: Whole Numbers

Section 1.2

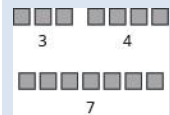1. What is the number modeled by the base-10 blocks?

Answer: 215

2. Write the number three hundred forty-two thousand six using digits.

Answer: 342,006

Section 1.3

1. Model $3 + 4$ using base-ten blocks.

Answer:

2. Add: 324 + 586.

Answer: 910

Section 1.4

1. Add: 1,683 + 49.

Answer: 2,162

2. Subtract: 605 – 321.

Answer: 284

Section 1.5

1. Multiply: $27 \cdot 3$.

Answer: 81

2. Subtract: $43 - 26$.

Answer: 17

3. Multiply: $62(87)$.

Answer: 5,394

Prealgebra
Ch 2: The Language of Algebra

Section 2.1

1. Add: 43 + 69.

Answer: 112

2. Multiply: (896)201.

Answer: 180,096

3. Divide: $7,263 \div 9$.

Answer: 807

Section 2.2

1. Is $n \div 5$ an expression or an equation?

Answer: expression

2. Simplify: 4^5.

Answer: 1,024

3. Simplify: $1+8\cdot9$.

Answer: 73

Section 2.3

1. Evaluate $x+8$ when $x=11$.

Answer: 19

2. Evaluate $5x-3$ when $x=9$.

Answer: 42

3. Translate into algebra: the difference of x and 8.

Answer: $x-8$

Section 2.4

1. Which of the following numbers are counting numbers (natural numbers)? $0,\ 4,\ 215$

Answer: 4 and 215

2. Find the sum of $3,\ 5,$ and 7.

Answer: 15

Section 2.5

1. Is 810 divisible by 2, 3, 5, 6, or 10?

Answer: 2, 3, 5, 6, 10

2. Is 127 prime or composite?

Answer: prime

3. Write $2\cdot2\cdot2\cdot2$ in exponential notation.

Answer: 2^4

Prealgebra
Ch 3: Integers

Section 3.1

1. Plot 0, 1, and 3 on a number line.

Answer:

2. Fill in the appropriate symbol: (=, <, or >): 2___4

Answer: <

Section 3.2

1. Evaluate $x + 8$ when x = 6.

Answer: 14

2. Simplify: 8 + 2(5 + 1).

Answer: 20

3. Translate *the sum of* 3 and negative 7 into an algebraic expression.

Answer: $3+(-7)$

Section 3.3

1. Simplify: 12 − (8 − 1).

Answer: 5

2. Translate *the difference of* 20 and −15 into an algebraic expression.

Answer: $20-(-15)$

3. Add: −18 + 7.

Answer: 11

Section 3.4

1. Translate the quotient of 20 and 13 into an algebraic expression.

Answer: $20 \div 13$

2. Add: −5 + (−5) + (−5)

Answer: -15

3. Evaluate *n* + 4 when n = −7.

Answer: -3

Section 3.5

1. Evaluate *x* + 4 when *x* = −4.

Answer: 0

2. Solve: *y* − 6 = 10.

Answer: 16

3. Translate into an algebraic expression *5 less than x*.

Answer: $x - 5$

Prealgebra
Ch 4: Fractions

Section 4.1

1. Simplify: 5 · 2 + 1.

Answer: 11

2. Fill in the blank with < or >: −2__−5
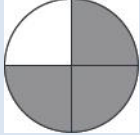
Answer: $-2 > -5$

Section 4.2

1. Find the prime factorization of 48.

Answer: $2 \cdot 2 \cdot 2 \cdot 2 \cdot 3$

2. Draw a model of the fraction $\dfrac{3}{4}$.

Answer:

3. Find two fractions equivalent to $\dfrac{5}{6}$.

Answer: Answers may vary. Acceptable answers include $\dfrac{10}{12}, \dfrac{15}{18}, \dfrac{50}{60}$, etc.

Section 4.3

1. Divide and reduce, if possible: $(4 + 5) \div (10 - 7)$.

Answer: 3

2. Multiply and write the answer in simplified form: $\dfrac{1}{8}, \dfrac{2}{3}$.

Answer: $\dfrac{1}{12}$

3. Convert $2\dfrac{3}{5}$ into an improper fraction.
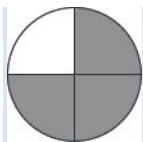
Answer: $\dfrac{13}{5}$

Section 4.4

1. Simplify: $2x + 9 + 3x - 4$.

Answer: $5x + 5$

2.   Draw a model of the fraction $\dfrac{3}{4}$.

Answer:

3. Simplify: $\dfrac{3+2}{6}$.

Answer: $\dfrac{5}{6}$

<div align="center">Section 4.5</div>

1. Find two fractions equivalent to $\dfrac{5}{6}$.

Answer: $\dfrac{10}{12}, \dfrac{15}{18}$
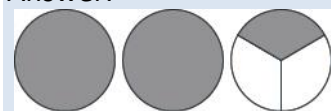
2. Simplify: $\dfrac{1+5\cdot3}{2^2+4}$.

Answer: 2

<div align="center">Section 4.6</div>

1. Draw figure to model $\dfrac{7}{3}$.

Answer:

2. Change $\dfrac{11}{4}$ to a mixed number.

Answer: $2\dfrac{3}{4}$

3. Change $3\dfrac{1}{2}$ to an improper fraction.

Answer: $\dfrac{7}{2}$

Section 4.7

1. Evaluate $x + 4$ when $x = -3$.

Answer: 1

2. Solve: $2y - 3 = 9$.

Answer: $y = 6$

3. Solve: $y - 3 = -9$.

Answer: 25

Prealgebra
Ch 5: Decimals

Section 5.1

1. Name the number 4,926,015 in words.

Answer: Four million, nine hundred twenty-six thousand, fifteen

2. Round 748 to the nearest ten.

Answer: 750

3. Locate $\dfrac{3}{10}$ on a number line.

Answer:

Section 5.2

1. Simplify $\dfrac{7}{2}$.

Answer: $\dfrac{7}{10}$

2. Multiply $\dfrac{3}{10} \cdot \dfrac{9}{10}$.

Answer: $\dfrac{27}{100}$

3. Divide $-36 \div (-9)$.

Answer: 4

Section 5.3

1. Divide: $0.24 \div 8$.

Answer: 0.03

2. Order 0.64___0.6 using < or >.

Answer: >

3. Order −0.2___−0.1 using < or >.

Answer: <

Section 5.4

1. Evaluate $x + \dfrac{2}{3}$ when $x = -\dfrac{1}{4}$.

Answer: $\dfrac{5}{12}$

2. Evaluate $15 - y$ when $y = -5$.

Answer: 20

3. Solve $\dfrac{n}{-7} = 42$.

Answer: -294

Section 5.5

1. Simplify: $\dfrac{4+9+2}{3}$.

Answer: 5

2. Simplify: 4(8) + 6(3).

Answer: 50

3. Convert $\dfrac{5}{2}$ to a decimal.

Answer: 2.5

Section 5.6

1. Simplify: $\dfrac{16}{24}$.

Answer: $\dfrac{2}{3}$

2. Divide: 2.76 ÷ 11.5.

Answer: 0.24

3. Simplify: $\dfrac{1\frac{1}{2}}{2\frac{3}{4}}$.

Answer: $\dfrac{6}{11}$

Section 5.7

1. Simplify: $(-9)^2$.

Answer: 81

2. Round 3.846 to the nearest hundredth.

Answer: 3.85

3. Evaluate 12*d* for *d* = 80.

Answer: 960

Prealgebra
Ch 6: Percents

Section 6.1

1. Translate "the ratio of 33 to 5" into an algebraic expression.

Answer: $\dfrac{33}{5}$

2. Write $\dfrac{3}{5}$ as a decimal.

Answer: 0.6

3. Write 0.62 as a fraction.

Answer: $\dfrac{31}{50}$

Section 6.2

1. Translate and solve: $\dfrac{3}{4}$ of *x* is 24.

Answer: 32

2. Simplify: (4.5)(2.38).

Answer: 10.71

3. Solve: 3.5 = 0.7*n*.

Answer: 5

Section 6.3

1. Solve 0.0875(720) through multiplication.

Answer: 63

2. Solve 12.96 ÷ 0.04 through division.

Answer: 324

Section 6.4

1. Solve 0.6y = 45.

Answer: 75

2. Solve $\dfrac{n}{1.45}$ = 4.6.

Answer: 6.67

Section 6.5

1. Simplify: $\dfrac{\frac{1}{3}}{4}$.

Answer: $\dfrac{1}{12}$

2. Solve: $\dfrac{x}{4}$ = 20.

Answer: 80

3. Write as a rate: Sale rode his bike 24 miles in 2 hours.

Answer: $\dfrac{24 \text{ miles}}{2 \text{ hours}}$

Prealgebra
Ch 7: The Properties of Real Numbers

Section 7.1

1. Write 3.19 as an improper fraction.

Answer: $\dfrac{319}{100}$

2. Write $\dfrac{5}{11}$ as a decimal.

Answer: $0.\overline{45}$

3. Simplify: $\sqrt{144}$.

Answer: 12

Section 7.2

1. Simplify: 7*y* + 2 + *y* + 13.

Answer: $8y+15$

2. Multiply: $\dfrac{2}{3}\cdot 18$.

Answer: 12

3. Find the opposite of 15.

Answer: -15

Section 7.3

1. Multiply: 3(0.25).

Answer: 0.75

2. Simplify: 10 − (−2)(3).

Answer: 16

3. Combine like terms: 9*y* + 17 + 3*y* − 2.

Answer: $12y+15$

Section 7.4

1. Find the opposite of −4.

Answer: 4

2. Find the reciprocal of $\dfrac{5}{2}$.

Answer: $\dfrac{2}{5}$

3. Multiply: $\dfrac{3a}{5}\cdot\dfrac{9}{2a}$.

Answer: $\dfrac{27}{10}$

Section 7.5

1. Multiply: 4.29(1000).

Answer: $4,290$

2. Simplify: $\dfrac{30}{54}$.

Answer: $\dfrac{5}{9}$

3. Multiply: $\dfrac{7}{15}\cdot\dfrac{25}{28}$.

Answer: $\dfrac{5}{12}$

Prealgebra
Ch 8: Solving Linear Inequalities

Section 8.1

1. Solve: $n - 12 = 16$.

Answer: 28

2. Translate into algebra 'five less than x.'

Answer: $x - 5$

3. Is $x = 2$ a solution to $5x - 3 = 7$?

Answer: yes

Section 8.2

1. Simplify: $7\left(\dfrac{1}{-7}\right)$.

Answer: 1

2. What is the reciprocal of $-\dfrac{3}{8}$?

Answer: $-\dfrac{8}{3}$

3. Evaluate $9x + 2$ when $x = -3$.

Answer: -25

Section 8.3

1. Simplify: $4y - 9 + 9$.

Answer: $4y$

2. Solve: $y + 12 = 16$.

Answer: 4

3. Solve: $-3y = 63$.

Answer: -21

Section 8.4

1. Multiply: $8 \cdot \dfrac{3}{8}$.

Answer: 3

2. Find the LCD of $\dfrac{5}{6}$ and $\dfrac{1}{4}$.

Answer: 12

3. Multiply: 4.78 by 100.

Answer: 478

Prealgebra
Ch 9: Math Models and Geometry

Section 9.1

1. Translate "6 less than twice *x*" into an algebraic expression.

Answer: $2x - 6$

2. Solve: $\dfrac{2}{3}x = 24$.

Answer: 36

3. Solve: 3*x* + 8 = 14.

Answer: 2

Section 9.2

1. Multiply: 14(0.25).

Answer: 3.5

2. Simplify: 100(0.2 + 0.05*n*).

Answer: $20 + 5n$

3. Solve: 0.25*x* + 0.10(*x* + 4) = 2.5.

Answer: 6

Section 9.3

1. Solve: *x* + 3 + 6 = 11.

Answer: $x = 2$

2. Solve: $\dfrac{a}{45} = \dfrac{4}{3}$.

Answer: 60

3. Simplify: $\sqrt{36 + 64}$.

Answer: 10

Section 9.4

1. The length of a rectangle is 3 less than the width. Let *w* represent the width. Write an expression for the length of the rectangle.

Answer: $w - 3$

2. Simplify: $\dfrac{1}{2}(6h)$.

Answer: $3h$

3. Simplify: $\dfrac{5}{2}(10.3 - 7.9)$.

Answer: 6

Section 9.5

1. Evaluate x^2 when *x* = 5.

Answer: 25

2. Using 3.14 for π, approximate the (a) circumference and (b) the area of a circle with radius 8 inches.

Answer: (a) 50.24 in.; (b) 200.96 sq. in.

3. Simplify $\dfrac{22}{7}(0.25)^2$ and round to the nearest thousandth.

Answer: 0.196

Section 9.6

1. Evaluate x^3 when $x = 5$.

Answer: 125

2. Evaluate $2x$ when $x = 5$.

Answer: 32

3. Find the area of a circle with radius $\dfrac{7}{2}$.

Answer: $\dfrac{77}{2}$

Section 9.7

1. Write 35 miles per gallon as a unit rate.

Answer: $\dfrac{35 \text{ miles}}{1 \text{ gallon}}$

2. Solve $6x + 24 = 96$.

Answer: 12

3. Find the simple interest earned after 5 years on $1,000 at an interest rate of 4%.

Answer: $200

<table>
<tr><td>Prealgebra
Ch 10: Polynomials</td></tr>
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Section 10.1

1. Simplify: $8x + 3x$.

Answer: $11x$

2. Subtract: $(5n + 8) - (2n - 1)$.

Answer: $3n + 9$

3. Evaluate: $4y^2$ when $y = 5$.

Answer: 100

Section 10.2

1. Simplify: $\dfrac{3}{4} \cdot \dfrac{3}{4}$.

Answer: $\dfrac{9}{16}$

2. Simplify: $(-2)(-2)(-2)$.

Answer: -8

Section 10.3

1. Distribute: $2(x + 3)$.

Answer: $2x + 6$

2. Distribute: $-11(4 - 3a)$.

Answer: $-44 + 33a$

3. Combine like terms: $x^2 + 9x + 7x + 63$.

Answer: $x^2 + 16x + 63$

Section 10.4

1. Simplify: $\dfrac{8}{24}$.

Answer: $\dfrac{1}{3}$

2. Simplify: $(2m^3)^5$.

Answer: $32m^{15}$

3. Simplify: $\dfrac{12x}{12y}$.

Answer: $\dfrac{x}{y}$

Section 10.5

1. What is the place value of the 6 in the number 64,891?

Answer: ten thousand

2. Name the decimal 0.0012.

Answer: twelve ten-thousandths

3. Subtract: 5 − (−3).

Answer: 8

Section 10.6

1. Factor 56 into primes.

Answer: $2 \cdot 2 \cdot 2 \cdot 7$

2. Multiply: −3(6a + 11).

Answer: $-18a - 33$

3. Multiply: $4x^2(x^2 + 3x - 1)$.

Answer: $4x^4 + 12x^3 - 4x^2$

Prealgebra
Ch 11: Graphs

Section 11.1

1. Evaluate: $x + 3$ when $x = -1$.

Answer: 2

2. Evaluate: $2x - 5y$ when $x = 3$, $y = -2$.

Answer: 16

3. Solve for y: $40 - 4y = 20$.

Answer: 5

Section 11.2

1. Evaluate: $3x + 2$ when $x = -1$.

Answer: −1

2. Solve the formula: $5x + 2y = 20$ for y.

Answer: $y = \dfrac{20 - 5x}{2}$

3. Simplify: $\dfrac{3}{8}(-24)$.

Answer: -9

Section 11.3

1. Solve: $3x + 4y = -12$ for x when $y = 0$.

Answer: −4

2. Is the point (0, −5) on the x-axis or y-axis?

Answer: *y*-axis

3. Which ordered pairs are solutions to the equation $2x - y = 6$? ⓐ (6, 0) ⓑ (0, −6) ⓒ (4, −2).

Answer: b

Section 11.4

1. Simplify: $\dfrac{1-4}{8-2}$.

Answer: $-\dfrac{1}{2}$

2. Divide: $\dfrac{0}{4}, \dfrac{4}{0}$.

Answer: 0, undefined

3. Simplify: $\dfrac{15}{-3}, \dfrac{-15}{3}, \dfrac{-15}{-3}$.

Answer: $-5, -5, 5$