

Section 2.3

Solve the equation.

1) $x^2 - 1 = x - 1$

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

3) $2y - 1 = 3y$

Section 2.4

Solve.

1) The perimeter of a square is 20. Find the length of one side.

2) The length of a rectangular room is 4 feet longer than twice the width. If the perimeter is 100 feet, what are the room's dimensions?

Section 2.5

Solve the formula for the specified variable.

1) $3x + 4 = 5$ for x

2) $6 = \frac{1}{x}Ah$ for A

Section 2.6

Solve. Round to two decimal places.

1) Robin got a 8% raise in her salary from last year. This year she is earning \$9,000. How much did she make last year?

2) 1000 ml of a 5% alcohol solution is mixed with 500 ml of a 20% alcohol solution. How much alcohol is in the mixture?

Section 2.7

Solve.

1) $1 + 9 = x^2$ in; eated at 18 times, le ann)al

Determine whether the pair of lines is parallel, perpendicular, or neither.

$$\begin{cases} y = 2x + 3 \\ y = -\frac{1}{2}x + 5 \end{cases}$$

Section 1.1

Solve.

1.) The number is 1 less than a number.
The number is 5 more than 5
times the first. (Find the number.)

2.) A car is sold for a profit of \$1000.
The profit is 10% of the selling price.
The profit is 20% of the cost.
(Find the selling price and the cost.)

Section 2.1

Graph the line.

1) $5x + y = 15$

2) $x - 5y = 15$

Graph the solution of the system of linear inequalities.

1)
$$\begin{cases} y < x + 5 \\ y > 5 - x \end{cases}$$

2)
$$\begin{cases} y > x - 5 \\ y < 5 - x \end{cases}$$

Section 3.1

Simplify the expression.

1)
$$\left(\frac{x^2 y^3}{B} \right)^4$$

2)
$$\frac{15m^1 n^1}{m^1 n^1}$$

3) xy

Section 4.2

Perform the indicated operation.

1) $(x + y) + (x - y)$

2) $(5n^2 - 1) - (n^2 - 1)$

Section 5.3

Multiply.

1) $(x + 1)(x - 2)$

2) $(a + 3)(a - 4)$

Section 6.1

Divide.

1) $(x^2 + 5x + 6) \div (x + 2)$

2) $(x^2 - 1) \div (x - 1)$

Section 7.1

Simplify the expression. Write the result using positive exponents only.

1) $x^{-2} y^3$

2) $(x^2 y^3)^{-2}$

3)
$$\frac{a^2 b^3 c^4}{a^3 b^2 c^5}$$

Section 1.2

Factor completely. If the polynomial cannot be factored, write "prime".

$$1) x^2 - 20$$

$$2) x^2 - xy + 1y^2$$

$$3) x^2 - 5$$

Section 1.3

Factor completely. If the polynomial cannot be factored, write "prime".

$$4) y^2 - 17y + 12$$

$$5) 1y^2 - 5y - 6$$

$$6) x^2 - 4x - 5$$

$$7) x^2 - 3x - 4$$

Section 1.4

Factor completely. If the polynomial cannot be factored, write "prime".

$$8) 5x^2 - 6$$

$$9) x^2 - 1$$

$$10) x^2 - 4$$

$$11) 5x^2 - 25$$

Section 1.5

Section 9.1

Solve the equation.

1) $1 - \frac{1}{x} = \frac{1}{x^2}$

2) $\frac{1}{y} - \frac{1}{y^2} = \frac{1}{y^3}$

3) $\frac{1}{x^2} - \frac{1}{x^3} = \frac{1}{x^4} - \frac{1}{x^5}$

Section 9.2

Solve.

1) If three times a number added to itself; divided by the number, plus 11, the result is 10. Find the number.

2) Mark and John have a land, a long job in hours, while it takes 7a/hel hours to finish the same job. If Mark and John work together on the job, and the total labor is 9a, then how long would the labor estimate be? Find the nearest cent, if necessary.

3) A car travels 60 miles on level terrain in the same amount of time it travels 40 miles on mountainous terrain. If the rate of the car is 40 miles per hour on level ground, find its rate in the mountains.

Section 9.3

Simplify.

1) $\frac{x-1}{x^2} \cdot \frac{x+1}{x-1}$

2) $\frac{1/a - 1/b}{1/a + 1/b}$

3) $\frac{1 - \frac{1}{x}}{x - \frac{1}{x}}$

Section 10.1

Find the root. Assume that all variable represent nonnegative real number.

1) $\sqrt[3]{\frac{1}{8}}$

2) $\sqrt{16}$

3) $\sqrt[4]{.x^4}$

4) $\sqrt[3]{.1x \cdot y^3}$

Section 10.2

Use radical notation to write the expression. Simplify if possible.

1) $16^{1/2}$

Write with positive exponents. Simplify if possible.

1) 5^{-2}

Use the properties of exponents to simplify the expression. Write with positive exponents.

1) $(b^5)^{-2}$

1) $B^{-3} \cdot B^{-2}$

Section 10.3

Simplify the radical expression. Assume that all variable represent positive real number.

1) $\sqrt{\frac{.x^2y}{.y}}$

Section 10.1

Add or subtract. Assume all variables represent positive real numbers.

11) $\sqrt{12} - \sqrt{3}$ $\sqrt{18} - \sqrt{2}$ $\sqrt{20} - \sqrt{5}$

11) $\sqrt{a} + \sqrt{a}$ $\sqrt{a} - \sqrt{a}$

Multiply (and then simplify if possible).

11) $\sqrt{5} \cdot \sqrt{11}$ $\sqrt{5}$

11) $\sqrt{12} \cdot \sqrt{12}$ $\sqrt{12} \cdot \sqrt{12}$

Section 10.2

Rationalize the denominator and simplify.

11) $\frac{\sqrt{2}}{\sqrt{3}}$

Write the conjugate of the expression.

11) $\sqrt{5} - 11\sqrt{y}$

Rationalize the denominator and simplify.

115) $\frac{\sqrt{5} - \sqrt{5}}{\sqrt{5} - \sqrt{5}}$

Section 10.3

Solve.

11) $\sqrt{2x} = 5$ $x = ?$

11) $\sqrt{5x - 11} = 5$ $x = ?$

11.) A volleyball net in high school is 7 feet high. To set up the net, the net is placed 12 feet from the bottom of the net. To the nearest tenth of a foot, find the length of the rope.

Section 10.4

Write in terms of i.

11) $\sqrt{-1}$

Perform the indicated operation. Write the result in the form a + bi.

11) $(3 - 2i) + (1 + i)$

11) $(2 + 3i)^2$

11) $\frac{2 + 3i}{1 + i}$

Section 11.1

Use the quadratic formula to solve the equation.

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

11) $x^2 - 5x + 6 = 0$

11) $x^2 + 3x - 5 = 0$

Solve.

115) A ball is thrown downward with an initial velocity of 50 feet per second from a height that is 6 feet high. The height of the ball is given by the quadratic equation $h = -16t^2 + 50t + 6$.