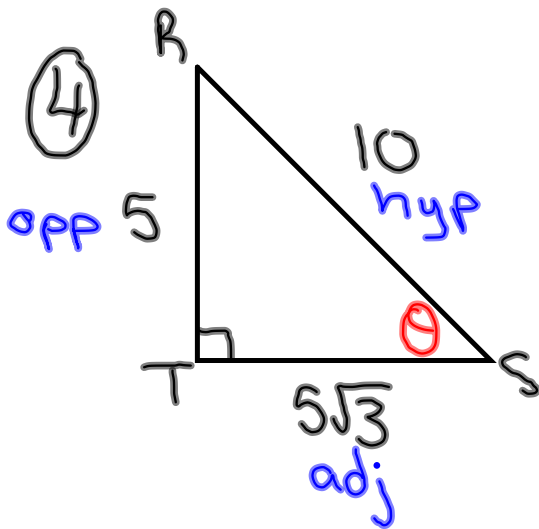


## Questions from Homework



$$a^2 + b^2 = c^2$$
$$(5)^2 + b^2 = (10)^2$$
$$25 + b^2 = 100$$
$$b^2 = 75$$
$$b = \sqrt{75}$$
$$b = 5\sqrt{3}$$

$$\textcircled{1} \sin \theta = \frac{5}{10} = \frac{1}{2}$$

$$\textcircled{2} \cos \theta = \frac{5\sqrt{3}}{10} = \frac{\sqrt{3}}{2}$$

$$\textcircled{3} \tan \theta = \frac{5}{5\sqrt{3}} = \frac{1}{\sqrt{3}} \cdot \frac{\sqrt{3}}{\sqrt{3}} = \frac{\sqrt{3}}{3}$$

$$\textcircled{4} \csc \theta = \frac{10}{5} = 2$$

$$\textcircled{5} \sec \theta = \frac{10}{5\sqrt{3}} = \frac{2}{\sqrt{3}} \cdot \frac{\sqrt{3}}{\sqrt{3}} = \frac{2\sqrt{3}}{3}$$

$$\textcircled{6} \cot \theta = \frac{5\sqrt{3}}{5} = \sqrt{3}$$

Solve the following

$$3x + 5 = 14$$

$$3x = 9$$

$$x = 3$$

$$4(x - 3) = 4$$

$$4x - 12 = 4$$

$$4x = 16$$

$$x = 4$$

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

$$4x - 12 - 8 = 4$$

$$4x - 20 = 4$$

$$4x = 24$$

$$x = 6$$

$$4x - 3 = 2x + 5$$

$$2x = 8$$

$$x = 4$$

$$\frac{x}{4} + 2 = 8$$

$$\frac{x}{4} = 6$$

$$x = 24$$

$$\frac{2(x+3)}{7} = \frac{2x}{8}$$

$$\frac{2x+6}{7} = \frac{2x}{8}$$

$$8(2x+6) = 14x$$

$$16x+48 = 14x$$

$$2x = -48$$

$$x = -24$$

$$\frac{1}{2}x + \frac{3}{4} = \frac{1}{4}$$

$$\frac{x}{2} + \frac{3}{4} = \frac{1}{4}$$

$$\frac{2x}{4} + \frac{3}{4} = \frac{1}{4}$$

$$\frac{2x+3}{4} = \frac{1}{4}$$

$$4(2x+3) = 1$$

$$8x+12 = 1$$

$$8x = -11$$

$$x = -1.375$$

$$\frac{1}{2}x + \frac{3}{4} = \frac{1}{4}$$

$$\frac{x}{2} + \frac{3}{4} = \frac{1}{4}$$

$$2x + 3 = 1$$

$$2x = -2$$

$$x = -1$$

# Solving Systems of Equations

## REMEMBER:

- you can multiply equations by a constant
- can add & subtract 2 equations to get a new equation
- you can rearrange the order of equations

## The Elimination Method:

$$\begin{array}{r} x + 2y = 4 \\ (+) - x + 3y = 1 \\ \hline 5y = 5 \\ \boxed{y = 1} \end{array}$$

→

$$\begin{array}{l} x + 2y = 4 \\ x + 2(1) = 4 \\ x + 2 = 4 \\ \boxed{x = 2} \end{array}$$

$\boxed{(2, 1)}$

$$\begin{array}{r}
 4x + y = 5 \\
 (+) \quad 3x - y = 9 \\
 \hline
 7x = 14 \\
 \boxed{x = 2}
 \end{array}
 \rightarrow
 \begin{array}{r}
 3x - y = 9 \\
 3(2) - y = 9 \\
 6 - y = 9 \\
 -y = 3 \\
 \boxed{y = -3}
 \end{array}
 \quad
 \boxed{(2, -3)}$$

How can I eliminate one of these

$$\begin{array}{r}
 x + 2y = 9 \\
 (-) \quad x + y = 5 \\
 \hline
 \boxed{y = 4}
 \end{array}
 \quad
 \begin{array}{r}
 x + y = 5 \\
 x + 4 = 5 \\
 \boxed{x = 1}
 \end{array}
 \quad
 \boxed{(1, 4)}$$

$$3x + 2y = 12$$

$$x + 3y = 11$$

$$3x + 2y = 12$$

$$\Leftrightarrow \frac{3x + 9y = 33}{-7y = -21}$$

$$-7y = -21$$

$$y = 3$$

$$x + 3y = 11$$

$$x + 3(3) = 11$$

$$x + 9 = 11$$

$$x = 2$$

$$(2, 3)$$

$$\textcircled{2} \quad 2x - 3y = 2$$

$$\textcircled{3} \quad 3x + 2y = 16$$

$$4x - 6y = 4$$

$$(+)\quad \frac{9x + 6y = 48}{13x = 52}$$

$$13x = 52$$

$$x = 4$$

$$2x - 3y = 2$$

$$2(4) - 3y = 2$$

$$8 - 3y = 2$$

$$-3y = -6$$

$$y = 2$$

$$(4, 2)$$

# Homework