

Pre-Algebra

Number and Operation

Students in Pre-Algebra understand relationships among positive and negative numbers and fractions. They compute fluently and simplify expressions. They solve problems involving fractions and percents.

Examples: $-\frac{1}{2} + \frac{2}{3}$ $|-3^2|$

Proportional Relationships

Students solve problems involving ratios, percents, decimals, and similar polygons using proportional reasoning. They begin to understand the meaning of slope.

Examples: Find 6% of 25. $\frac{2}{3} = \frac{x}{15}$

Algebra

Students express patterns using tables, graphs, and symbols. They evaluate and simplify expressions and solve equations and inequalities. They graph ordered pairs and lines.

Examples: $2x + 3x$ $2x + 5 = 7x - 3$ Graph: $2x + 3y = 6$

Geometry and Measurement

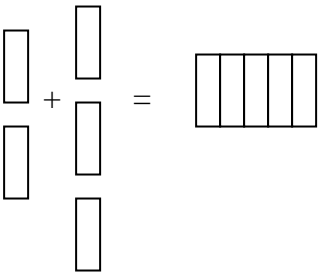
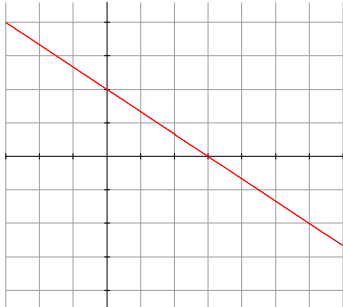
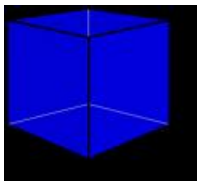

Students relate their skills in proportional reasoning to geometry by solving problems involving scale factors and unit conversion. They compute surface areas and volumes for right prisms and cylinders.

Examples: Find the amount of paint needed to paint a cube.
Measure a soda can and calculate its volume.

Statistics and Probability

Students calculate simple probabilities and compare theoretical and experimental probability. They display data graphically and use the graphs to answer questions.

Example: What is the probability of flipping a coin twice and getting two heads?

Number and Operation									
$-\frac{1}{2} + \frac{2}{3} = \left(\frac{3}{3}\right)\left(\frac{-1}{2}\right) + \left(\frac{2}{2}\right)\left(\frac{2}{3}\right) =$ $\frac{-3}{6} + \frac{4}{6} = \frac{1}{6}$	$ -3^2 = -9 = 9$								
Proportional Relationships									
<p>Find 6% of 25:</p> $\frac{6}{100} \times 25 = \frac{150}{100} = \frac{3}{2}$ <p>OR</p> $.06 \times 25 = 1.5$	$\frac{2}{3} = \frac{x}{15}$ $2(15) = 3x$ $\left(\frac{2(15)}{3}\right) = \frac{3x}{3}$ $10 = x$								
Algebra									
$2x + 3x = 5x$ 	$2x + 5 = 7x - 3$ $2x + 5 - 5 = 7x - 3 - 5$ $2x = 7x - 8$ $2x - 7x = 7x - 7x - 8$ $-5x = -8$ $\frac{-5x}{-5} = \frac{-8}{-5}$ $x = \frac{8}{5}$								
<p>Graph: $2x + 3y = 6$</p> <table border="1"> <thead> <tr> <th>x</th> <th>y</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>2</td> </tr> <tr> <td>3</td> <td>0</td> </tr> <tr> <td>6</td> <td>-2</td> </tr> </tbody> </table>	x	y	0	2	3	0	6	-2	
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0	2								
3	0								
6	-2								
Geometry and Measurement									
<p>Find the amount of paint needed to paint a cube.</p> <p>Each side measures 3 cm.</p> <p>Area of one side = 9cm^2</p> <p>Total area = 54cm^3</p> 	<p>Measure a soda can and calculate its volume.</p> <p>Radius = 2 in.</p> <p>Height = 6 in.</p> <p>Volume = $2^2 \pi(6) = 24\pi \approx 75 \text{ in}^3$</p> 								
Statistics and Probability									
<p>What is the probability of flipping a coin twice and getting two heads?</p> <p>HH TT HT TH 1/4</p>									