

Alg 1 2.6

Compare ratios
Solve proportions

ratio
proportion
cross-products
scale
scale model

$$\frac{2}{5} \qquad \frac{3}{2}$$

$\frac{7}{10} = \frac{14}{20}$
 $140 = 140$

2 equivalent
ratios

Solve each proportion. If necessary, round to the nearest hundredth.

15. $\frac{3}{8} = \frac{15}{a}$

↓

$$\frac{3}{8} = \frac{15}{a}$$

$$\frac{3a}{3} = \frac{120}{3}$$

$$a = 40$$

16. $\frac{t}{2} = \frac{6}{12}$

$$t \cdot 12 = 2 \cdot 6$$

$$\frac{12t}{12} = \frac{12}{12}$$

$$t = 1$$

17. $\frac{4}{9} = \frac{13}{x}$

$$\frac{4x}{4} = \frac{177}{4}$$

$$x = 29.25$$

~~27.~~ $\frac{x-3}{5} = \frac{6}{10} \cdot \frac{5}{1}$

$x-3 = \frac{30}{10}$

$10(x-3)$

$x-3 = 3$
 $+3 \quad +3$

 $x = 6$

$10x - 30 = 30$
 $+30 \quad +30$

 $10x = 60$
 $\frac{10x}{10} = \frac{60}{10}$

28. $\frac{7}{x+9} = \frac{21}{36}$

$252 = 21(x+9)$

$252 = 21x + 189$
 $-189 \quad -189$

$63 = 21x$
 $\frac{63}{21} = \frac{21x}{21}$

$x = 6$

$3 = x$

29. $\frac{10}{15} = \frac{4}{x-5}$

$10(x-5) = 60$

$10x - 50 = 60$
 $+50 \quad +50$

$10x = 110$
 $\frac{10x}{10} = \frac{110}{10}$

$x = 11$

32. **CCSS PRECISION** An artist used interlocking building blocks to build a scale model of Kennedy Space Center, Florida. In the model, 1 inch equals 1.67 feet of an actual space shuttle. The model is 110.3 inches tall. How tall is the actual space shuttle? Round to the nearest tenth.

33. **MENU** On Monday, a restaurant made \$545 from selling 110 hamburgers. If they sold 53 hamburgers on Tuesday, how much did they make?

$$\frac{1 \text{ in}}{1.67 \text{ ft}} = \frac{110.3 \text{ in}}{x \text{ ft}}$$

$$1x = 184.201$$

184.2 ft

$$\frac{\$545}{x} = \frac{110 \text{ h}}{53 \text{ h}}$$

$$\frac{\$545}{110 \text{ h}} = \frac{x \$}{53 \text{ h}}$$

$$110x = 28,855$$

$$x = 262.5909$$

$$\$262.59$$

40. **ATHLETES** At Piedmont High School, 3 out of every 8 students are athletes. If there are 1280 students at the school, how many are not athletes?

$$\frac{3A}{8S} = \frac{X A}{1280S}$$

800 not ath

41. **BRACES** Two out of five students in the ninth grade have braces. If there are 325 students in the ninth grade, how many have braces?

$$\frac{2B}{5S} = \frac{X B}{325S}$$

$$\frac{8X}{8} = \frac{3840}{8}$$

$$X = 480$$

$$\frac{5X}{5} = \frac{650}{5}$$

$$X = 130$$

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