

Name: Key

Date:

Topic:

Class:

Main Ideas/Questions	Notes/Examples	
<h1>PROPORTIONS</h1>	<ul style="list-style-type: none"> A proportion is an equation that states that two ratios are <u>equal</u>. To determine whether a pair of ratios forms a proportion, check their <u>cross products</u>. If $\frac{a}{b} = \frac{c}{d}$, then <u>$ad = cb$</u>. 	
	<p>Directions: Determine whether the pair of ratios forms a proportion.</p>	
	<p>1. $\frac{5}{6}, \frac{20}{24}$ $120 = 120$ Proportional</p>	<p>2. $\frac{2}{3}, \frac{8}{15}$ $30 \neq 24$ Nonproportional</p>
	<p>3. $\frac{9}{7}, \frac{54}{42}$ $378 = 378$ proportional</p>	<p>4. $\frac{8}{18}, \frac{28}{45}$ $360 \neq 504$ Nonproportional</p>
	<p>5. $\frac{15}{20}, \frac{42}{56}$ $840 = 840$ proportional</p>	<p>6. $\frac{7}{1.6}, \frac{35}{8}$ $56 = 56$ Proportional</p>
	<p>7. $\frac{0.5}{18}, \frac{1.5}{40}$ $20 \neq 27$ Nonproportional</p>	<p>8. $\frac{16.2}{68.4}, \frac{9}{38}$ $615.6 = 615.6$ proportional</p>
<h1>Solving Proportions</h1>	<p>Directions: Solve each proportion. Check all solutions.</p>	
	<p>9. $\frac{16}{12} = \frac{x}{3}$ $\frac{12x}{12} = \frac{48}{12}$ $x = 4$</p>	<p>10. $\frac{7}{8} = \frac{21}{k}$ $\frac{7k}{7} = \frac{168}{7}$ $k = 24$</p>
	<p>11. $\frac{26}{w} = \frac{5}{6}$ $\frac{5w}{5} = \frac{156}{5}$ $w = 31.2$</p>	<p>12. $\frac{a}{9} = \frac{14}{63}$ $\frac{63a}{63} = \frac{126}{63}$ $a = 2$</p>

$$13. \frac{n}{6} = \frac{19}{30}$$

$$\frac{30n}{30} = \frac{114}{30}$$

$$n = 3.8$$

$$14. \frac{1.2}{m} = \frac{4}{11}$$

$$\frac{4m}{4} = \frac{13.2}{4}$$

$$m = 3.3$$

$$15. \frac{20}{32.5} = \frac{8}{p}$$

$$\frac{20p}{20} = \frac{260}{20}$$

$$p = 13$$

$$16. \frac{2.25}{64} = \frac{v}{8}$$

$$\frac{64v}{64} = \frac{18}{64}$$

$$v = \frac{9}{32} \text{ or } 0.28125$$

$$17. \frac{4x}{5} = \frac{84}{15}$$

$$\frac{60x}{60} = \frac{420}{60}$$

$$x = 7$$

$$18. \frac{2}{15} = \frac{8.4}{7c}$$

$$\frac{14c}{14} = \frac{126}{14}$$

$$c = 9$$

A Challenge!

(Hint - Use Distribution!)

$$19. \frac{2}{3} = \frac{x-2}{12}$$

$$3(x-2) = 24$$

$$3x - 6 = 24$$

$$\begin{array}{r} +6 \quad +6 \\ \hline 3x = 30 \\ \hline \frac{3}{3} \quad \frac{3}{3} \end{array}$$

$$x = 10$$

$$20. \frac{10}{a+7} = \frac{5}{2}$$

$$5(a+7) = 20$$

$$5a + 35 = 20$$

$$\begin{array}{r} -35 \quad -35 \\ \hline 5a = -15 \\ \hline \frac{5}{5} \quad \frac{5}{5} \end{array}$$

$$a = -3$$

$$21. \frac{r-1}{5} = \frac{r+6}{10}$$

$$10(r-1) = 5(r+6)$$

$$\begin{array}{r} 10r - 10 = 5r + 30 \\ -5r \quad -5r \\ \hline 5r - 10 = 30 \\ +10 \quad +10 \\ \hline 5r = 40 \\ \hline \frac{5}{5} \quad \frac{5}{5} \end{array}$$

$$r = 8$$

$$22. \frac{4}{7} = \frac{c+10}{5c-2}$$

$$4(5c-2) = 7(c+10)$$

$$20c - 8 = 7c + 70$$

$$\begin{array}{r} -7c \quad -7c \\ \hline 13c - 8 = 70 \\ +8 \quad +8 \\ \hline 13c = 78 \\ \hline \frac{13}{13} \quad \frac{13}{13} \end{array}$$

$$c = 6$$