

LESSON 6.0

Practice A

Express each ratio in simplest form

1. 3 to 9 $\div 3$

1 to 3

2. $10 : 8 \div 2$

$5 : 4$

3. $\frac{12}{15} = \frac{4}{5}$ $\div 3$

4. 60 to 10 $\div 10$

6 to 1

5. $14 : 2 \div 2$

$7 : 1$

6. $\frac{4}{4} = \frac{1}{1}$ $\div 4$

Find the indicated value.

7. The ratio of the measure of two supplementary angles is $11 : 4$. Find the measure of each angle. 180

$$11x + 4x = 180$$

$$15x = 180$$

$$x = 12$$

$$11(12) = 132^\circ$$

$$4(12) = 48^\circ$$

$$\frac{180}{180}$$

8. The perimeter of a triangle is 132 cm and the lengths of its sides are in the ratio $8 : 11 : 14$. Find the length of each side.

$$8x + 11x + 14x = 132$$

$$33x = 132$$

$$x = 4$$

$$8(4) = 32 \text{ cm}$$

$$11(4) = 44 \text{ cm}$$

$$14(4) = 56 \text{ cm}$$

$$\frac{132 \text{ cm}}{132 \text{ cm}}$$

Use the properties of proportions to complete each statement.

9. If $\frac{a}{b} = \frac{2}{3}$, then $3a = 2b$

Cross Mult.

10. If $\frac{c}{d} = \frac{4}{7}$, then $\frac{d}{c} = \frac{7}{4}$

Reciprocals

11. If $\frac{e}{f} = \frac{5}{9}$, then $\frac{e}{5} = \frac{f}{9}$

12. If $\frac{g}{h} = \frac{j}{8}$, then $\frac{h}{8} = \frac{g}{j}$

13. If $\frac{x}{y} = \frac{3}{8}$, then $\frac{y}{x} = \frac{8}{3}$

Reciprocal

14. $\frac{a}{4} = \frac{b}{7}$, then $\frac{a}{b} = \frac{4}{7}$

15. If $\frac{k}{m} = \frac{2}{3}$, then $\frac{k}{2} = \frac{m}{3}$

16. $\frac{4}{x} = \frac{2}{7}$, then $2x = 4 \cdot 7 = 28$

Cross Multiply

Solve the proportion.

$$17. \frac{x}{14} = \frac{12}{24}$$
$$24x = 168$$
$$x = 7$$

$$18. \frac{8}{24} = \frac{d}{36}$$
$$288 = 24d$$
$$12 = d$$

$$19. \frac{15}{n} = \frac{3}{4}$$
$$60 = 3n$$
$$20 = n$$

$$20. \frac{9}{45} = \frac{5}{h}$$
$$9h = 225$$
$$h = 25$$

$$21. \frac{a}{6} = \frac{4}{12}$$
$$12a = 24$$
$$a = 2$$

$$22. \frac{13}{t} = \frac{91}{7}$$
$$91 = 91t$$
$$1 = t$$

$$23. \frac{75}{120} = \frac{r}{8}$$
$$600 = 120r$$
$$5 = r$$

$$24. \frac{b}{20} = \frac{2}{3}$$
$$3b = 40$$
$$b = \frac{40}{3} \approx 13.3$$

Solve the proportion.

$$25. \frac{9}{8} = \frac{x}{6} \quad 54 = 8x \\ x = \frac{27}{4} = 6.75$$

$$26. \frac{x+5}{4} = \frac{1}{2} \quad 2(x+5) = 4 \\ 2x+10 = 4 \\ 2x = -6 \\ x = -3$$

$$27. \frac{x+5}{4} = \frac{1}{2} \quad 2(x+5) = 4 \\ 2x+10 = 4 \\ 2x = -6 \\ x = -3$$

$$28. \frac{x+3}{2} = \frac{4}{3} \quad 3(x+3) = 8 \\ 3x+9 = 8 \\ 3x = -1 \\ x = -\frac{1}{3} \approx -0.33$$

$$29. \frac{x+4}{x-4} = \frac{6}{5} \quad 5(x+4) = 6(x-4) \\ 5x+20 = 6x-24 \\ 44 = x$$

$$30. \frac{x+2}{x+3} = \frac{4}{5} \quad 5(x+2) = 4(x+3) \\ 5x+10 = 4x+12 \\ x = 2$$