# Chapter 5

## Self-Test (pp. 318-319)

1. $\frac{75c}{8p} \cdot \frac{2}{15c} = \frac{5}{4p} \cdot \frac{1}{1} = \frac{5}{4p}$

2. $\frac{5}{a} \div \frac{9}{3a^2} = \frac{5}{a} \cdot \frac{3a^2}{9} = \frac{5}{1} \cdot \frac{a}{3} = \frac{5a}{3}$

3. $\frac{2x}{5} \div \frac{x}{5} = \frac{2x}{5} \cdot \frac{5}{x} = \frac{2}{1} \cdot \frac{1}{1} = 2$

4. B

5. $h = \frac{6}{101} \cdot 17 = \frac{102}{101}$

6. $4u = \frac{9}{5} \cdot 3$; $u = \frac{27}{5} \cdot \frac{1}{4} = \frac{27}{20}$

7. $24\left(\frac{x}{8}\right) = 24\left(\frac{2x-3}{24}\right)$; $3x = 2x - 3$; $x = -3$

8. a. $8x = 105$

   b. $x = \frac{105}{8} = 13.125$

9. $(6 \text{ boxes} \cdot 10 \frac{\text{pencils}}{\text{box}}) \div 4 \text{ children} =$
   $60 \text{ pencils} \div 4 \text{ children} = 15 \frac{\text{pencils}}{\text{child}}$

10. $\frac{221}{1{,}563} \approx 0.141 = 14.1\%$

11. $\frac{7.5 \text{ min}}{1 \text{ mi}} \cdot \frac{1 \text{ mi}}{1.6 \text{ km}} \cdot \frac{60 \text{ sec}}{1 \text{ min}} = 281.25 \frac{\text{sec}}{\text{km}}$; 281.25 sec

12. $\frac{x}{x-5} = \frac{12}{4}$; $4x = 12(x-5)$; $4x = 12x - 60$; $60 = 8x$;
    $x = \frac{60}{8} = 7.5$

13. The sector between 3 and 4 represents $\frac{1}{12}$ of the clock, so the probability is $\frac{1}{12}$.

14. The discount is \$4.50 off \$22.50, so $\frac{\$4.50}{\$22.50} = 0.2$, or 20%.

15. a. $50 \text{ km}/(1\frac{47}{60}\text{hr}) \approx 28 \text{ km/hr}$

    b. about 0.036 hr/km

16. 18%, because $7 + 2 = 9$ people out of 50.

17. 50%, because $50 - 7 - 16 - 2 = 25$ people out of 50.

18. 46%, because $7 + 16 = 23$ people out of 50.

19. $k$ cannot be 2, because then the denominator would be 0, and division by zero is undefined.

20. $\frac{c}{f+s+c+d}$

21. Let m be the number of miles. Then $\frac{350}{20} = \frac{m}{35}$;
    $20m = 12{,}250$; $m = 612.5$ mi.

22. Area of rectangle $= 4 \text{ ft} \cdot 7 \text{ ft} = 28 \text{ ft}^2$. Area of circle $= \pi \cdot \left(\frac{21 \text{ in.}}{12 \frac{\text{in.}}{\text{ft}}}\right)^2 \approx 9.62$ square feet. So the probability is about $\frac{9.62}{28} \approx 34\%$.

23. $\frac{1{,}210}{x} = \frac{4}{6}$; $x = 1{,}815$ ft

24. 24; The 75th percentile implies 25% performed better. $\frac{6}{x} = \frac{1}{4}$; $x = 24$