

6. a) 24:16, 24:15  
b) Megan's punch uses less ginger ale for the same amount of concentrate.
7. a) Punch B; it uses concentrate and water in the ratio 5:8, punch A uses a ratio of 4:8.  
b) Punch B; it uses concentrate and water in the ratio 5:6, punch A uses a ratio of 4:6.
8. a) Set B; explanations may vary.  
b) Set B;  
Set A uses blue and clear liquid in the ratio 3:2.  
Set B uses blue and clear liquid in the ratio 4:2.  
c) Sketches may vary. The ratio of blue to clear liquid must be equivalent to 3:2. For example:



9. 15 cm by 24 cm  
10. a) 0.5 cm                      b) 0.4 cm

#### 4.2 Ratio and Proportion, page 117

1. a) First terms:  $125 = 25 \times 5$ ; first ratio:  $20 = 4 \times 5$   
b) First terms:  $120 = 12 \times 10$ ;  
first ratio:  $10 = 10 \times 1$   
c) Second terms:  $100 = 4 \times 25$ ; first ratio:  $75 = 3 \times 25$   
d) Second terms:  $48 = 16 \times 3$ ; first ratio:  $3 = 3 \times 1$
2. a)  $n = 20$     b)  $n = 3$     c)  $n = 3$     d)  $n = 30$
3. a)  $z = 6$     b)  $z = 15$     c)  $z = 7$     d)  $z = 8$
4. Yes, the ratios are equivalent, so the number of the songs is proportional to the amount of memory.
5. 18 L  
6. 25 h  
7. 15 potatoes
8. a)  $c = 45$                       b)  $n = 30$   
c)  $y = 8$                         d)  $z = 15$
9. a) 84 cm  
b) Calculate  $28 \div 17 \approx 1.65$  and then  $51 \times 1.65 \approx 84$ .
10. 276 times
11. a) 84 teeth                      b) 189 teeth
12. a) 500 girls, 400 boys    b) 15 girls, 12 boys

#### 4.3 Unit Rates, page 123

1. a) 2 goals scored per game  
b) \$10 per hour    c) \$0.50 per orange  
d) 110 km/h
2. a) \$0.50 per CD    b) \$0.79 per apple  
c) 1.5 kg lost per week  
d) 4.4 km/h
3. 150 L/h
4. The hardwood is more expensive at \$44.12/m<sup>2</sup>.
5. e-Tunes is the most economical music club at \$1.05 per song.
6. No. The can from the machine costs 3 times as much as the cans in the 12-pack.
7. Can C

8. a) 144 tea bags for \$5.39  
b) Use equivalent ratios.  
c) Sue might not use 144 bags of tea before they go stale.
9. a) Price (in dollars) per 100 g  
b) \$0.62 per 100 g, \$0.57 per 100 g  
c) Dee's Delight

#### Chapter 4 Mid-Chapter Review, page 126

1. a) equivalent                      b) not equivalent  
c) not equivalent                  d) equivalent
2. a) Pitcher B  
b) A pitcher containing 6 parts concentrate and 4 parts water
3. No, the ratios are not equivalent.
4. a)  $n = 40$                           b)  $m = 20$   
c)  $y = 3$                               d)  $r = 12$
5. 160 mL
6. a) 3:10  
b) 168 male doctors  
c) 51 female doctors  
d) The ratio of female doctors to male doctors remains the same.
7. a) 15 km/L                          b) 30 words/min  
c) \$18.50/h                          d) 87.5 km/h
8. Beckie
9. a) \$1.04, \$1.08                      b) Cereal A

#### 4.4 Applying Proportional Reasoning, page 129

1. a) \$15                                  b) \$195  
2. a) \$56                                  b) \$616  
3. \$480
4. a) 14 cases                          b) Use equivalent ratios.  
5. a) 300 km                              b) 10 L  
6. a) 7500 books                          b) 58 min  
7. a) 750 cm, or 7.5 m                  b) 100 cm  
8. a) 45 points                          b) 38 points  
c) Answers may vary. For example: Chloë and her father scored 19 baskets each.
9. a) \$191.25 US  
b) \$11.76 Can; The exchange rate remains the same.
10. Too dry

#### 4.5 Using Algebra to Solve a Proportion, page 133

1. a)  $n = 9$                           b)  $n = 3$                           c)  $n = 15$   
d)  $n = 40$                           e)  $n = 10$
2. a)  $c = 27$                               b)  $m = 7$   
c)  $y = 105$                               d)  $a = 175$
3. a) 0.83 m                              b) 7.4 m
4. \$445.00
5. a) 160 000 tickets                      b) 23.44 min
6. a) 2.03 m                              b) 95.4 cm  
c) Answers may vary.