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BLM 4–13

Chapter 4 *MathLinks 7*
Student Resource Answers

4.1 Connect Fractions, Decimals, and Percents, pages 129–131

5. a) 67 marbles **b)** 23 cookies
c) $37.40 **d)** 32.7 m

6. a) 17 daffodils **b)** 1.8 cm
c) 10.5 min **d)** $0.14

7. a) 1.5 min **b)** 3.4 cm **c)** 5 cats **d)** $8.95

8. Answers may vary. **a)** 50% of 44 is 22
b) 50% of 20 is 10, so 25% of 20 is 5
c) 10% of 12 is 1.2 **d)** 1% of 150 is 1.5

9. Answers may vary.
a) 50% of $40 is $20; 10% of $40 is $4, so 60% of $40 is $20 + $4 = $24
b) 50% of 44 is 22; 25% of 44 is 11, so 75% of 44 is 22 + 11 = 33
c) 10% of 750 is 75, so 20% of 750 is 75 + 75 = 150
d) 25% of 240 is 60; 10% of 240 is 24, so 35% of 240 is 60 + 24 = 84

10. Answers may vary.
a) 50% of $60 is $30; 25% of $60 is $15; so 75% of $60 is $30 + $15 = $45
b) 25% of 120 m is 30 m; 10% of 120 m is 12 m; so 35% of 120 m is 30 m + 12 m = 42 m
c) 50% of 280 students is 140 students; 25% of 280 students is 70 students; 10% of 280 students is 28 students; so 85% of 280 students is 140 + 70 + 28 = 238 students
d) 10% of 45 cm is 4.5 cm, so 30% of 450 cm is 4.5 cm + 4.5 cm + 4.5 cm = 13.5 cm

11. Answers may vary. For example: 50% of 68 is 34; 25% of 68 is 17; 75% of 68 is 51; 37.5% is half of 75%; and half of 51 is 25.5

12. a) 0.57 **b)** 0.3 **c)** 0.05 **d)** 0.88

13. a) 0.42 **b)** 0.38 **c)** 0.15 **d)** 0.73

14. a) $\frac{1}{10} < 0.12 < 14\%$ **b)** $0.24 < \frac{1}{4} < 27\%$
c) $0.39 < 40\% < \frac{41}{100}$

15. a) $0.35 > 32\% > \frac{3}{10}$ **b)** $76\% > \frac{3}{4} > 0.72$
c) $0.54 > \frac{1}{2} > 45\%$

16. Answers may vary. **a)** $\frac{3}{10}$ **b)** 0.15 **c)** 0.8

17. a) 31 **b)** $\frac{7}{8}$

18. Answers may vary. For example: 1.6

19. Answers may vary. Move the decimal point for the price of the item 1 decimal place to the left.

20. 62 300

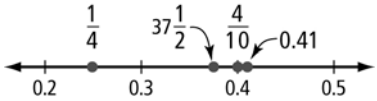
21. Answers may vary. 10% of $28 = $2.80; 5% of $28 = $1.40; $2.80 + $1.40 = $4.20

22. 294 students **23.** 68.2 kg

24. a) 27 cm **b)** 135 cm

25. $360.75

26. $0.41 > \frac{4}{10} > 37\frac{1}{2}\% > \frac{1}{4}$



27. 1440 females **28.** 1300 seats **29.** 30%

30. a) Junior $0.47; Jumbo $0.80; Kong $1.19
b) Junior $3.03; Jumbo $3.70; Kong $4.31
c) $1684.60

4.2 Fractions, Decimals, and Percents, pages 137–139

5. a) 0.5 **b)** 0.50 **c)** 0.9 **d)** 0.682

6. a) 0.4 **b)** 0.611 **c)** 0.72 **d)** 0.061

7. a) Player A: .321; Player B: .316
b) Player A: He gets a hit over 32% of the time he is at bat. Player B's average is under 32%.

8. a) $0.\overline{5}$ **b)** $0.\overline{09}$ **c)** $0.18\overline{7}$ **d)** $2.0\overline{15}$

9. a) $0.\overline{4}$ **b)** $0.2\overline{6}$ **c)** $0.\overline{185}$ **d)** $1.0\overline{62}$

10. a) 0.8333333..., $0.8\overline{3}$
b) 0.6666666..., $0.\overline{6}$
c) 0.454545454..., $0.\overline{45}$
d) 0.636363636..., $0.\overline{63}$

11. a) 0.16666666..., $0.1\overline{6}$
b) 0.428571428..., $0.\overline{428571}$
c) 0.252525252..., $0.\overline{25}$
d) 0.363636363..., $0.\overline{36}$

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12. a) Between 50% and 60%, but closer to 50%
b) Between 40% and 50%, but closer to 40%

13. a) 55%
b) Between 50% and 60%, but closer to 50%

14. a) $\frac{95}{100}$ **b)** $\frac{3}{10}$ **c)** $\frac{243}{1000}$ **d)** $\frac{8}{100}$

15. a) $\frac{80}{100}$ **b)** $\frac{2}{10}$ **c)** $\frac{18}{100}$ **d)** $\frac{455}{1000}$

16. a) $\frac{5}{100}$ or $\frac{1}{20}$; $\frac{10}{100}$ or $\frac{1}{10}$; $\frac{25}{100}$ or $\frac{1}{4}$
b) 0.05, 0.1, 0.25
c) A nickel is 5% of a dollar. A dime is 10% of a dollar. A quarter is 25% of a dollar.

17. a) $\frac{71}{100}$ **b)** $\frac{421}{1000}$ **c)** $\frac{78}{100}$

18. a) Between 55% and 60%, but closer to 60%
b) There are 140 children in the daycare.
50% of 140 is 70; 10% of 140 is 14; 5% of 140 is 7.
55% = 70 + 7 = 77 Too low
60% = 70 + 14 = 84 Too high
81 is closer to 84 than 77. The percent of the children in the daycare that are girls is closer to 60%.

19. a) Between 30% and 40%, but closer to 30% **b)** $\frac{85}{270}$, 0.315
c) 31.5%. This is close to the estimate.

20. a) $0.\overline{4}$ **b)** $0.\overline{8}$

21. a) $\frac{3}{11}, \frac{10}{11}, \frac{9}{11}$
b) Answers may vary. The digits that repeat add to 9. Convert the decimal number to a fraction where the denominator is 11 and the numerator is one number larger than the first number of the repeating pattern.
c) 0.090909..., 0.181818..., 0.454545..., 0.7272727...

22. a) $0.\overline{142857}$, $0.\overline{285714}$, $0.\overline{428571}$, $0.\overline{571428}$, $0.\overline{714285}$, $0.\overline{857142}$
b) 142 + 857 = 999; 285 + 714 = 999; 428 + 571 = 999; 571 + 428 = 999; 714 + 285 = 999; 857 + 142 = 999
c) When the numbers in the first half of each repeating pattern are added to the numbers in the last half of each repeating pattern, the sum is 999.
d) For the decimal equivalent of $\frac{7}{13}$, the sum of the numbers in the first half of the repeating pattern and the last half of the repeating pattern is 999. For the decimal equivalent of $\frac{4}{11}$, the sum of the numbers in the first half of the repeating pattern and the last half of the repeating pattern is 9.

4.3 Applications of Percents, pages 143–145

4. a) 50% of 184; 92; 52
b) 10% of 640; 64; 3.25
c) 35% of 140; 49; 42

5. a) $54.00 **b)** $135.00 **c)** $540.00
d) The answer in c) is 4 times larger than the answer in b).

6. The second group of eggs was better (i.e., approximately 56% hatched).

7. The second order of books had the greater percent of adventure novels (i.e., approximately 43% were adventure novels).

8. Tuesday (i.e., approximately 90% of the people signed out books).

9. a) Roast turkey: 21.4%; Ground beef: 21.1%; Almonds: 22.2%; Tuna: 21.3%
b) Almonds, Roast turkey, Tuna, Ground beef

10. The discount is $248. The new price is $992.

11. a) Answers will vary. For example: $70.00
b) $70.00 **c)** $129.99

12. a) Adults: $2.19, Students: $1.61
b) Yes. Answers may vary. For example: It would be easier to make change.
c) Adults: $2.20; Students: $1.60

13. a) $3458.74 **b)** $44 149.74

14. a) Carl
b) Meagan: 14.3%; Carl: 12.0%; Billi: 10.1% **c)** Meagan

15. a) 76% **b)** Answers may vary. For example: 56%

16. a) 30% **b)** 30.2% **c)** 53.1% **d)** 34.5%

17. Answers may vary. **a)** $39.00 **b)** $41.00

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18. a) 10%, 0.1, $\frac{1}{10}$; 50%, 0.50, $\frac{1}{2}$; 25%, 0.25, $\frac{1}{4}$; 75%, 0.75, $\frac{3}{4}$
b) Winnipeg: 90%; Churchill: 50%; Rankin Inlet: 75%; Baker Lake 25%
19. 180
20. a) 128 **b)** 160
21. $55 000 **22.** 40%

Chapter 4 Review, pages 146–147

1. B **2.** D **3.** C
4. a) 2.5 **b)** 21 **c)** 49 **d)** 93
5. a) $\frac{1}{8}$ **b)** 75% **c)** 1.25
6. Answers may vary. $\frac{3}{4}$, 76%, $0.\overline{7}$; 0.75, 0.76, 0.777777...
7. Answers may vary. 39.1 is between 39 and 40, but closer to 39.
8. Answers will vary. 10% of 180 is 18, so 40% of 180 is 4 × 18 = 72
9. a) $19.56 **b)** $52.16
10. a) $\frac{1}{4}$, 0.25, 25%
b) $\frac{75}{100}$, 0.75, 75%
c) $\frac{20}{100}$, 0.20, 20%
d) $\frac{5}{100}$ or $\frac{1}{20}$, 0.05, 5%
e) $\frac{35}{100}$, 0.35, 35%
11. 37.5%
12. a) $0.8\overline{3}$, repeating **b)** 0.75, terminating
c) $0.\overline{4}$, repeating
13. a) 0.66 **b)** 0.5 **c)** 0.512 **d)** 0.2
14. a) Answers may vary. 73%
b) Round 86 to 90. $\frac{90}{120}$ is 75%. 86 is less than 90, so the percent is less than 75%. **c)** 71.7%
15. a) $\frac{8}{10}$ **b)** $\frac{35}{100}$ **c)** $\frac{167}{1000}$
16. a) Answers may vary. 33%; 472 is close to 500; 1595 is close to 1500. $\frac{500}{1500}$ is approximately 33%
b) 23.8% **c)** 45.5%
17. Jason Maas: 67.1%; Ricky Ray: 65.9%. Jason Maas has a better passing statistic.
18. Becky. Catriona's save percentage is $\frac{654}{680} = 96.2\%$; Becky's save percentage is $\frac{532}{548} = 97.1\%$. Becky has a better save percentage.
19. 28.97% **20. a)** $14.50 **b)** $43.50
21. 4.8 h

Chapter 4 Practice Test, pages 148–149

1. D **2.** B **3.** C **4.** B
5. $0.\overline{14}$ **6.** 700 **7.** 33.5 **8.** 68%
9. a) $19.95 **b)** $30.00 **c)** 66.5%
10. a) 14.7, 14.709, 14.71 **b)** 0.3, 28%, $\frac{1}{4}$
11. 90
12. No. Answers may vary. The calculator rounded the number to 7 decimal places.
13. a) 14, 14.4, 36, 40 **b)** 40, 36, 14.4, 14
14. a) $\frac{18}{30}$, 0.6, 60% **b)** $\frac{1}{6}$, $0.1\overline{6}$, 17%
c) $\frac{45}{60}$, 0.75, 75% **d)** $\frac{14}{21}$, $0.\overline{6}$, 67%
15. a) The friend who bought the poster. The cost of the poster was $13.60. The cost of the CD was $13.19. The cost of the lunch was $12.87.
b) The friend who bought lunch. The cost of the lunch was $12.87. The cost of the poster was $13.60. The cost of the CD was $13.19.
16. a) Answers may vary. For example: 60%
b) 63.8%
c) Answers may vary. For example: 50%. About 400 + 400 = 800 people prefer brand A. About 700 + 900 = 1600 people were surveyed altogether. Then, $\frac{800}{1600} = \frac{1}{2} = 50\%$.
d) 45.7%
17. 28%

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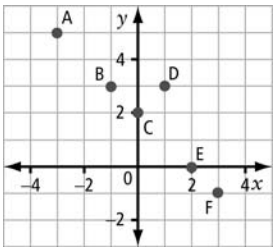
(continued)

Chapters 1–4 Review, pages 152–154

1. a)



b) D(1, 3) **c)** G(–2, 4), H(1, 1)

2. D(2, –2); E(2, 2); F(–2, 2); G(–2, –2)

3. (5, –3)

4. a) reflection **b)** translation **c)** rotation

5. a) A'(0, 0); B'(0, –4); C'(4, 0)

b) A"(0, 0); B"(0, –4); C"(–4, 0)

c) 4 units horizontally left; 4 units vertically down

6. a) T"(–1, 2); E"(2, 2); A"(2, –1); M"(–1,–1)

b) 4 units horizontally right; 9 units vertically up

7. a) 0.9770 **b)** 20.66

c) 18.7898 **d)** 1.992

8. a) 7; 7.85 **b)** 7; 6.8

c) 12; 9.62 **d)** 4; 5.8

9. a) 3.2 **b)** 19.7 **10.** $194.75

11. a) Answers may vary. For example: $36.00

b) $34.90

c), d) Answers will vary by province or territory.

12. a) Approximately 15 cans; 14 cans will not be enough

b) Approximately 42 students

c) $27.45

d) Answers may vary. All bowls are filled with exactly 190 mL of soup.

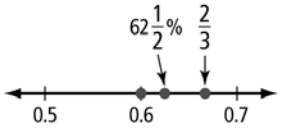
e) Answers may vary. For example: costs of purchasing plastic spoons, bowls, and serviettes

13. and **14.** Constructions will vary.

15. a) 24 cm^2 **b)** 12 cm^2

16. a) 2700 cm^2 **b)** 2700 cm^2

17.



18. a) $0.\overline{4}$ **b)** $0.\overline{27}$ **c)** $0.\overline{285714}$

19. a) $\frac{35}{100}$ **b)** $\frac{2}{10}$ **c)** $\frac{25}{1000}$

20. a) Electro-Zip: $\frac{15}{20}$, 75%; Ultraback: $\frac{7}{10}$, 70%; A-Retrieve: $\frac{23}{30}$, 77%

b) A-Retrieve; fewer CD-ROMs are defective. A-Retrieve has the highest percent of CD-ROMs that passes the test for defects.

21. a) Maria; 221 newspapers **b)** Jeremy; 88%

22. a) Answers may vary. Blue is easiest to hit because it covers a wider single area than red or yellow.

b) blue: $\frac{9}{25}$, 36%; yellow: $\frac{12}{25}$, 48%; red: $\frac{4}{25}$, 16%

c) yellow, blue, red