

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

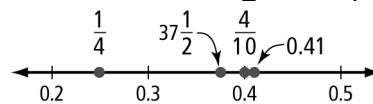
21. Answers may vary. 10% of \$28 = \$2.80; 5% of \$28 = \$1.40; \$2.80 + \$1.40 = \$4.20

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) $0.\bar{5}$ b) $0.0\bar{9}$ c) $0.18\bar{7}$ d) $2.0\bar{15}$

9. a) $0.\bar{4}$ b) $0.2\bar{6}$ c) $0.1\bar{85}$ d) $1.0\bar{62}$

10. a) $0.8333333\dots$, $0.8\bar{3}$

b) $0.6666666\dots$, $0.\bar{6}$

c) $0.454545454\dots$, $0.4\bar{5}$

d) $0.636363636\dots$, $0.\bar{63}$

11. a) $0.16666666\dots$, $0.1\bar{6}$

b) $0.428571428\dots$, $0.4\overline{28571}$

c) $0.252525252\dots$, $0.2\bar{5}$

d) $0.363636363\dots$, $0.3\bar{6}$

- 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)** 0.4 **b)** 0.8
- 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..., 0.72727272...
- 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

- 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%, $0.\bar{7}$; 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 $4 \times 18 = 72$
- 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)** $0.8\bar{3}$, repeating **b)** 0.75, terminating
c) $0.\bar{4}$, 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%

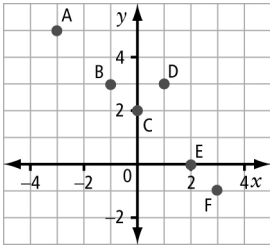
- 17.** Jason Maas: 67.1%; Ricky Ray: 65.9%.
Jason Maas has a better passing statistic.
- 18.** Becky. Catriona's save percentage is
 $\frac{654}{680} = 96.2\%$; Becky's save percentage
is $\frac{532}{548} = 97.1\%$. Becky has a better save
percentage.
- 19.** 28.97% **20. a)** \$14.50 **b)** \$43.50
- 21.** 4.8 h

Chapter 4 Practice Test, pages 148–149

- 1.** D **2.** B **3.** C **4.** B
5. 0.14 **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)** $\frac{1}{6}$, $0.1\bar{6}$, 17%
c) $\frac{45}{60}$, 0.75, 75% **d)** $\frac{14}{21}$, $0.\bar{6}$, 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%

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

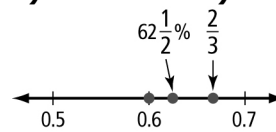
d) Answers may vary. All bowls are filled with exactly 190 mL of soup.

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