Chapter 7 *MathLinks 7*
Student Resource Answers

7.1 Common Denominators, pages 234–236

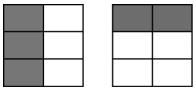
4. a) common denominator: 12; $\frac{1}{4} = \frac{3}{12}, \frac{2}{3} = \frac{8}{12}$

b) common denominator: 8; $\frac{1}{2} = \frac{4}{8}, \frac{3}{4} = \frac{6}{8}$

5. a) common denominator: 15; $\frac{1}{3} = \frac{5}{15}, \frac{3}{5} = \frac{9}{15}$

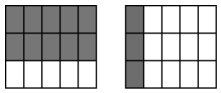
b) common denominator: 24; $\frac{5}{6} = \frac{20}{24}, \frac{1}{4} = \frac{6}{24}$

6. a)



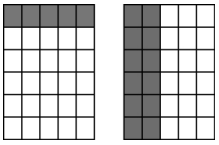
common denominator: 6; $\frac{1}{2} = \frac{3}{6}, \frac{1}{3} = \frac{2}{6}$

b)



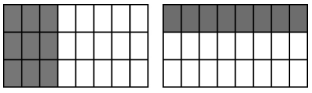
common denominator: 15; $\frac{2}{3} = \frac{10}{15}, \frac{1}{5} = \frac{3}{15}$

c)



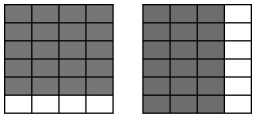
common denominator: 30; $\frac{1}{6} = \frac{5}{30}, \frac{2}{5} = \frac{12}{30}$

7. a)



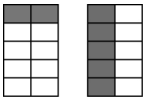
common denominator: 24, $\frac{3}{8} = \frac{9}{24}, \frac{1}{3} = \frac{8}{24}$

b)



common denominator: 24; $\frac{5}{6} = \frac{20}{24}, \frac{3}{4} = \frac{18}{24}$

c)



common denominator: 10; $\frac{1}{5} = \frac{2}{10}, \frac{1}{2} = \frac{5}{10}$

8. a) 10; $\frac{1}{2} = \frac{5}{10}, \frac{2}{5} = \frac{4}{10}$

b) 12; $\frac{1}{3} = \frac{4}{12}, \frac{1}{4} = \frac{3}{12}$

c) 24; $\frac{5}{8} = \frac{15}{24}, \frac{1}{6} = \frac{4}{24}, \frac{5}{12} = \frac{10}{24}$

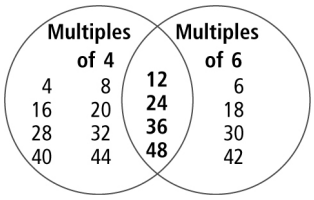
9. a) 8; $\frac{3}{8}, \frac{1}{4} = \frac{2}{8}$ **b)** 12; $\frac{1}{6} = \frac{2}{12}, \frac{1}{4} = \frac{3}{12}$

c) 30; $\frac{1}{5} = \frac{6}{30}, \frac{2}{3} = \frac{20}{30}, \frac{7}{10} = \frac{21}{30}$

10. a) 16; $\frac{13}{16}$ is larger. **b)** 49; $\frac{36}{49}$ is larger.

c) 30; $\frac{11}{30}$ is larger. **d)** 27; the fractions are equal.

11.



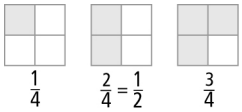
12. a) $\frac{1}{4} = \frac{2}{8} = \frac{3}{12} = \frac{4}{16} = \frac{5}{20} = \frac{6}{24} = \frac{7}{28}$

b) $\frac{1}{5} = \frac{2}{10} = \frac{3}{15} = \frac{4}{20} = \frac{5}{25} = \frac{7}{35} = \frac{11}{55}$

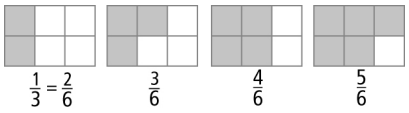
c) $\frac{24}{56} = \frac{12}{28} = \frac{6}{14} = \frac{3}{7} = \frac{48}{112} = \frac{9}{21}$

d) $\frac{30}{48} = \frac{15}{24} = \frac{10}{16} = \frac{5}{8} = \frac{60}{96} = \frac{20}{32}$

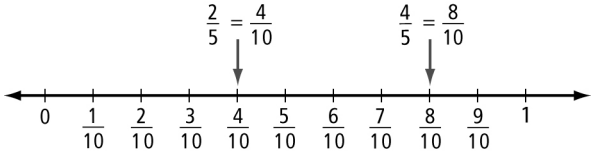
13. a) Answers may vary. For example, $\frac{1}{2}$



b) Answers may vary. For example, $\frac{3}{6}, \frac{4}{6}$



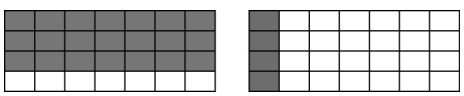
c) Answers may vary. For example, $\frac{5}{10}, \frac{6}{10}, \frac{7}{10}$



14. 12; $\frac{1}{3} = \frac{4}{12}, \frac{1}{4} = \frac{3}{12}, \frac{5}{6} = \frac{10}{12}, \frac{2}{3} = \frac{8}{12}, \frac{3}{4} = \frac{9}{12}, \frac{1}{2} = \frac{6}{12}$; $\frac{1}{4}, \frac{1}{3}, \frac{1}{2}, \frac{2}{3}, \frac{3}{4}, \frac{5}{6}$

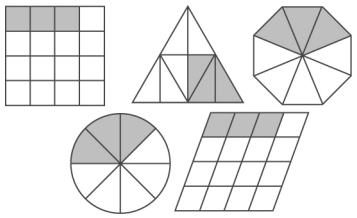
15. a) Answers may vary. $\frac{1}{2}$ of the rectangle is 3 of the 6 squares. $\frac{1}{3}$ of the rectangle is 2 of the 6 squares. The common denominator is 6.

b) common denominator: 28

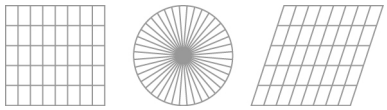


16. a) 36 **b)** The grass takes up more space.

17. a)



b) Answers may vary.
c) Answers may vary.



d) Answers may vary.

18. $\frac{1}{2}, \frac{1}{3}, \frac{2}{3}, \frac{1}{4}, \frac{3}{4}, \frac{1}{5}, \frac{2}{5}, \frac{3}{5}, \frac{4}{5}, \frac{1}{6}, \frac{5}{6}, \frac{1}{7}, \frac{2}{7}, \frac{3}{7}, \frac{4}{7}, \frac{5}{7}, \frac{6}{7}, \frac{1}{8}, \frac{3}{8}, \frac{5}{8}, \frac{7}{8}, \frac{1}{9}, \frac{2}{9}, \frac{4}{9}, \frac{5}{9}, \frac{7}{9}, \frac{8}{9}$

19. A **20.** D

21. a) kindergarten **b)** grade 5
c) grade 4 and grade 6 **d)** 360

7.2 Add and Subtract Fractions With Unlike Denominators, pages 242–244

4. Estimates may vary.

a) $\frac{1}{4}+\frac{1}{2}=\frac{1}{4}+\frac{2}{4}=\frac{3}{4}$

b) $\frac{2}{5}+\frac{3}{10}=\frac{4}{10}+\frac{3}{10}=\frac{7}{10}$

c) $\frac{1}{6}+\frac{3}{4}=\frac{2}{12}+\frac{9}{12}=\frac{11}{12}$

5. a) $\frac{2}{5}+\frac{6}{10}=\frac{4}{10}+\frac{6}{10}=\frac{10}{10}=1$

b) $\frac{3}{8}+\frac{1}{4}=\frac{3}{8}+\frac{2}{8}=\frac{5}{8}$

c) $\frac{1}{7}+\frac{1}{2}=\frac{2}{14}+\frac{7}{14}=\frac{9}{14}$

6. a) $\frac{1}{2}$ **b)** $\frac{7}{8}$ **c)** $\frac{3}{4}$ **d)** $\frac{17}{20}$ **e)** $\frac{7}{10}$ **f)** $\frac{13}{24}$

7. a) $\frac{7}{8}$ **b)** $\frac{11}{12}$ **c)** 1 **d)** $\frac{5}{9}$ **e)** $\frac{9}{10}$ **f)** $\frac{11}{12}$

8. a) $\frac{1}{2}+\frac{1}{3}=\frac{3}{6}+\frac{2}{6}=\frac{5}{6}$ **b)** $\frac{1}{6}+\frac{1}{3}=\frac{1}{6}+\frac{2}{6}=\frac{3}{6}$

9. Estimates may vary.

a) $\frac{3}{4}-\frac{3}{8}=\frac{6}{8}-\frac{3}{8}=\frac{3}{8}$

b) $\frac{7}{10}-\frac{1}{5}=\frac{7}{10}-\frac{2}{10}=\frac{5}{10}$

c) $\frac{2}{3}-\frac{3}{5}=\frac{10}{15}-\frac{9}{15}=\frac{1}{15}$

10. a) $\frac{5}{6}-\frac{2}{3}=\frac{5}{6}-\frac{4}{6}=\frac{1}{6}$

b) $\frac{3}{5}-\frac{1}{2}=\frac{6}{10}-\frac{5}{10}=\frac{1}{10}$

c) $\frac{9}{12}-\frac{3}{4}=\frac{9}{12}-\frac{9}{12}=0$

11. a) $\frac{3}{10}$ **b)** $\frac{1}{3}$ **c)** $\frac{2}{5}$ **d)** $\frac{3}{8}$ **e)** $\frac{4}{15}$ **f)** $\frac{5}{24}$

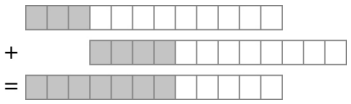
12. a) $\frac{5}{8}$ **b)** $\frac{1}{12}$ **c)** $\frac{1}{6}$ **d)** $\frac{1}{18}$ **e)** $\frac{3}{20}$ **f)** $\frac{1}{10}$

13. a) $\frac{1}{2}-\frac{1}{6}=\frac{3}{6}-\frac{1}{6}=\frac{2}{6}$ **b)** $\frac{2}{3}-\frac{1}{6}=\frac{4}{6}-\frac{1}{6}=\frac{3}{6}$

14. a) $\frac{7}{12}$ of a tray **b)** $\frac{3}{12}$ or $\frac{1}{4}$ of a tray

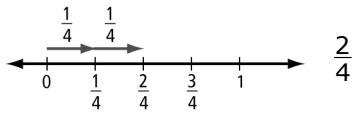
15. $\frac{1}{8}$ of a length

16. a) Answers may vary. For example, the friend added the denominators of the fractions. **b)** Diagrams may vary.

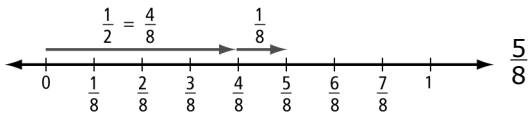


17. $\frac{3}{6}$ or $\frac{1}{2}$ of the plane was left.

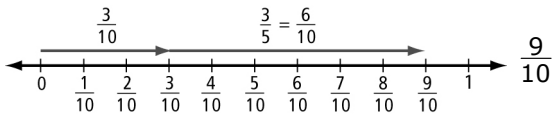
18. a)



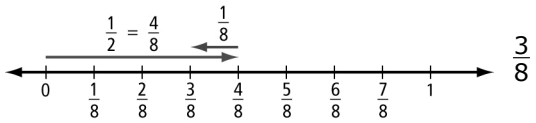
b)



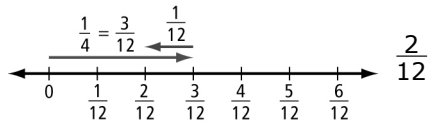
c)



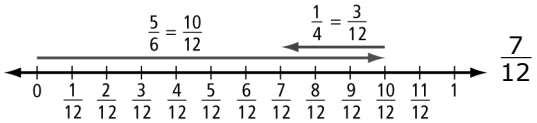
19. a)



b)



c)



20. No. $\frac{1}{2}+\frac{1}{4}+\frac{1}{8}+\frac{1}{16}+\frac{1}{32}+\frac{1}{64}$

$=\frac{32}{64}+\frac{16}{64}+\frac{8}{64}+\frac{4}{64}+\frac{2}{64}+\frac{1}{64}=\frac{63}{64}$

21. a) $\frac{3}{5}$ full **b)** 5 h

22.

$\frac{1}{6}$	$\frac{5}{12}$	$\frac{5}{12}$
$\frac{7}{12}$	$\frac{1}{3}$	$\frac{1}{12}$
$\frac{1}{4}$	$\frac{1}{4}$	$\frac{1}{2}$

23. a) B = $\frac{1}{4}$, C = $\frac{1}{8}$, D = $\frac{1}{16}$, E = $\frac{1}{8}$, F = $\frac{1}{16}$, G = $\frac{1}{8}$

b) $\frac{2}{4} = \frac{1}{2}$ **c)** $\frac{15}{16}$ **d)** D and F
e) Answers will vary.

7.3 Add Mixed Numbers, pages 249–251

4. a) $1\frac{1}{3}+\frac{1}{3}$ **b)** $1\frac{2}{6}+1\frac{3}{6}$ **c)** $2\frac{5}{8}+2\frac{4}{8}$

5. a) $1\frac{2}{4}+1\frac{1}{4}$ **b)** $1\frac{2}{5}+2\frac{3}{5}$ **c)** $1\frac{2}{6}+\frac{4}{6}$

6. a) $2\frac{2}{3}$ **b)** $8\frac{3}{4}$ **c)** 2
d) $5\frac{4}{5}$ **e)** $5\frac{1}{5}$ **f)** $6\frac{2}{3}$

7. a) $3\frac{3}{5}$ **b)** $4\frac{3}{4}$ **c)** $5\frac{2}{3}$
d) 5 **e)** $3\frac{2}{5}$ **f)** $11\frac{1}{2}$

8. a) $1\frac{2}{3}+1\frac{1}{6}$ **b)** $2\frac{1}{4}+1\frac{1}{2}$ **c)** $2\frac{7}{10}+1\frac{2}{5}$

9. a) $1\frac{1}{3}+1\frac{2}{6}$ **b)** $\frac{3}{4}+1\frac{1}{6}$ **c)** $3\frac{5}{12}+2\frac{3}{4}$

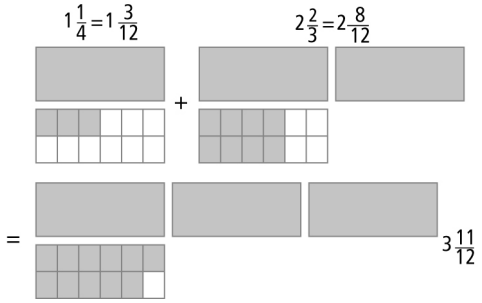
10. a) $3\frac{7}{10}$ **b)** $5\frac{2}{3}$ **c)** $3\frac{7}{12}$
d) $5\frac{4}{5}$ **e)** $7\frac{2}{3}$ **f)** $10\frac{8}{21}$

11. a) $6\frac{1}{2}$ **b)** $6\frac{9}{10}$ **c)** $6\frac{9}{20}$
d) $9\frac{11}{30}$ **e)** $2\frac{7}{12}$ **f)** $7\frac{2}{5}$

12. 4 h **13.** $2\frac{5}{8}$ pages

14. $4\frac{5}{6}$ dozen eggs. Estimates may vary. For example, 2 + 3 = 5 dozen eggs.

15. He cut $3\frac{11}{12}$ trays of spinach pie. Diagrams may vary.

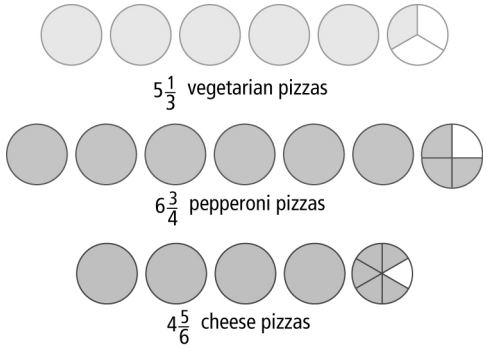


16. $2\frac{1}{12}$ h. Estimates may vary. For example, 1 + 1 = 2 h.

17. a) Jonas **b)** $4\frac{4}{15}$ boxes **c)** $5\frac{2}{15}$ boxes

18. a) Answers may vary. 12 h. Yes, she met her goal. **b)** 11 h **c)** Answers may vary. Yes, the estimate of 12 h is a little more than 11 h.

19. a) Diagrams may vary.



b) Estimates may vary. 17 pizzas. There were $16\frac{11}{12}$ pizzas sold.

20. a) $4\frac{1}{30}$ h **b)** $6\frac{17}{60}$ p.m.

7.4 Subtract Mixed Numbers, pages 257–259

3. a) $3\frac{2}{3}-2\frac{1}{3}$ **b)** $2\frac{3}{6}-2\frac{1}{6}$ **c)** $2\frac{3}{10}-1\frac{7}{10}$

4. a) $2\frac{3}{4}-1\frac{1}{4}$ **b)** $2\frac{2}{5}-2\frac{1}{5}$ **c)** $3\frac{1}{8}-2\frac{2}{8}$

5. a) $\frac{1}{5}$ **b)** $1\frac{1}{4}$ **c)** 2 **d)** $1\frac{1}{2}$ **e)** $1\frac{1}{3}$ **f)** $2\frac{6}{7}$

6. a) $1\frac{4}{9}$ **b)** 0 **c)** $3\frac{3}{5}$ **d)** $1\frac{2}{5}$ **e)** $\frac{5}{12}$ **f)** $\frac{3}{4}$

7. a) $3\frac{5}{8}-2\frac{2}{4}$ **b)** $2\frac{3}{10}-1\frac{3}{5}$ **c)** $4\frac{7}{12}-2\frac{3}{4}$

8. a) $2\frac{3}{4}-1\frac{1}{2}$ **b)** $1\frac{6}{8}-\frac{2}{4}$ **c)** $3\frac{3}{7}-2\frac{1}{2}$

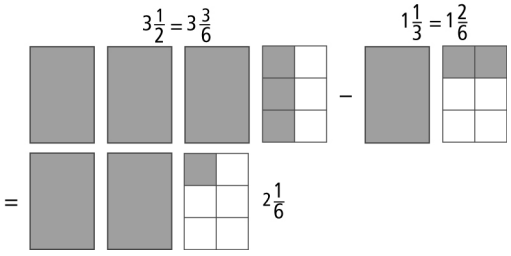
9. a) $3\frac{3}{10}$ **b)** $4\frac{3}{10}$ **c)** $4\frac{3}{10}$
d) $2\frac{8}{9}$ **e)** $\frac{2}{15}$ **f)** $1\frac{5}{14}$

10. a) $2\frac{1}{10}$ **b)** $\frac{1}{12}$ **c)** $2\frac{7}{18}$
d) $1\frac{5}{6}$ **e)** $2\frac{5}{12}$ **f)** $\frac{19}{20}$

11. $\frac{2}{3}$ h of practice **12.** $5\frac{1}{4}$ bottles

13. a) $2\frac{1}{4}$ h longer **b)** Answers may vary.
4 − 2 = 2

14. Diagrams may vary.



Julia needs $2\frac{1}{6}$ more packages of Saskatoon berries.

15. Mark has collected $\frac{7}{12}$ more of a set.

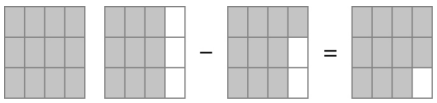
16. a) Alex needs to complete $10\frac{3}{4}$ h more.

b) Methods for checking may vary.
$13\frac{1}{2} - 2\frac{3}{4} \approx 14 - 3 = 11$ h

17. Mei ran $\frac{1}{12}$ lap farther.

18. a) $2\frac{1}{4}$ **b)** $1\frac{1}{2}$ **c)** $3\frac{7}{12}$

19. Diagrams may vary.



$\frac{11}{12}$ of a tray of dinner rolls is left.

20. a) $3\frac{1}{4}$ h **b)** $15\frac{3}{4}$ h **c)** $8\frac{1}{4}$ h

21. a) $\frac{1}{2}$ **b)** Answers may vary.

22. a) $\frac{17}{20}$ or 0.85 pieces of construction paper

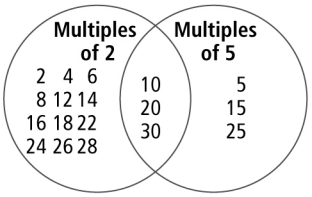
b) $7\frac{7}{20}$ or 7.35 pieces of construction paper

23. a) $\frac{5}{6}$ of a package **b)** 10 golf balls

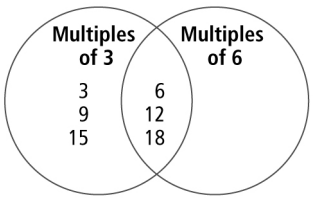
Chapter 7 Review, pages 260–261

1. multiple **2.** improper fraction
3. mixed number **4.** common denominator

5. a)



b)



6. Answers may vary.
a) 8 **b)** 15 **c)** 12 **d)** 20

7. common denominator: 12; equivalent fractions: $\frac{6}{12}, \frac{2}{12}, \frac{8}{12}, \frac{9}{12}, \frac{7}{12}$; from greatest to least: $\frac{3}{4}, \frac{2}{3}, \frac{7}{12}, \frac{1}{2}, \frac{1}{6}$

8. a) $\frac{2}{3} + \frac{1}{4} = \frac{8}{12} + \frac{3}{12} = \frac{11}{12}$

b) $\frac{3}{8} + \frac{1}{2} = \frac{3}{8} + \frac{4}{8} = \frac{7}{8}$

9. a) $\frac{7}{9} - \frac{4}{6} = \frac{14}{18} - \frac{12}{18} = \frac{2}{18}$

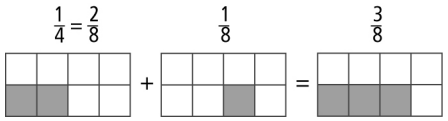
b) $1 - \frac{1}{2} = \frac{1}{2}$

10. a) $\frac{1}{2}$ **b)** $\frac{1}{2}$ **c)** $1\frac{7}{20}$

d) $\frac{7}{12}$ **e)** $1\frac{7}{12}$ **f)** $\frac{23}{30}$

11. a) $\frac{1}{4}$ **b)** $\frac{1}{3}$ **c)** $\frac{1}{3}$ **d)** $\frac{4}{15}$ **e)** 0 **f)** $\frac{7}{24}$

12. Diagrams may vary.

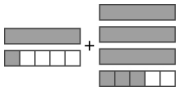
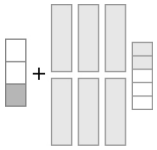


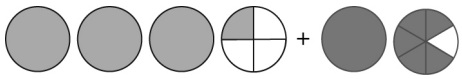
The bin is $\frac{3}{8}$ full.

13. June-el ran $\frac{2}{3}$ h more yesterday. Methods for checking may vary.

14. a) $\frac{5}{12}$ of the bag **b)** $\frac{1}{4}$ of the bag

15. a) $2\frac{3}{10} + 2\frac{6}{10}$ **b)** $3\frac{3}{4} + 2\frac{1}{2}$

16. a) $4\frac{4}{5}$  **b)** $6\frac{11}{15}$ 

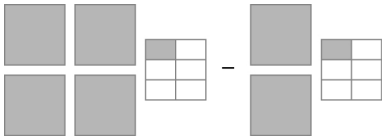
c) $5\frac{1}{12}$ 

17. a) $4\frac{1}{2}$ **b)** $4\frac{9}{10}$ **c)** $4\frac{1}{3}$

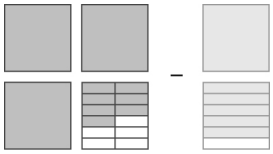
d) 10 **e)** $6\frac{3}{4}$ **f)** $10\frac{17}{24}$

18. $8\frac{1}{6}$ rooms. Methods of checking may vary.
For example, $2\frac{5}{15} + 5\frac{3}{4} \approx 2 + 6 = 8$

19. a) $2\frac{3}{5} - 1\frac{3}{5}$ **b)** $2\frac{1}{4} - \frac{2}{3}$

20. a) 

b) 

c) 

21. a) $\frac{1}{2}$ **b)** $1\frac{1}{5}$ **c)** $2\frac{5}{12}$

d) $1\frac{1}{2}$ **e)** $1\frac{1}{2}$ **f)** $\frac{19}{21}$

22. a) $\frac{7}{12}$ of a bag **b)** $3\frac{1}{2}$ bags

Chapter 7 Practice Test, pages 262–263

1. A **2.** D **3.** D **4.** B

5. a) $\frac{3}{8}+\frac{2}{8}=\frac{5}{8}$ **b)** $\frac{2}{3}+\frac{1}{8}=\frac{16}{24}+\frac{3}{24}=\frac{19}{24}$

c) $1\frac{1}{3}+2\frac{1}{3}=3\frac{2}{3}$ **d)** $\frac{6}{8}+1\frac{1}{2}=\frac{6}{8}+1\frac{4}{8}=2\frac{1}{4}$

6. a) $\frac{3}{4}-\frac{1}{4}=\frac{1}{2}$ **b)** $\frac{3}{5}-\frac{1}{3}=\frac{9}{15}-\frac{5}{15}=\frac{4}{15}$

c) $3\frac{1}{2}-2\frac{5}{8}=2\frac{12}{8}-2\frac{5}{8}=\frac{7}{8}$

d) $1\frac{3}{12}-\frac{2}{4}=\frac{15}{12}-\frac{6}{12}=\frac{3}{4}$

7. a) $\frac{1}{2}$ **b)** $1\frac{5}{12}$ **c)** 6 **d)** $7\frac{2}{15}$

8. a) $\frac{2}{3}$ **b)** $\frac{1}{12}$ **c)** $2\frac{1}{6}$ **d)** $\frac{11}{12}$

9. $5\frac{7}{10}$ trays

10. a) $1\frac{1}{4}$ h **b)** $6\frac{1}{4}$ h

11. a) $1\frac{7}{12}$ h **b)** $3\frac{11}{12}$ h

12. a) $\frac{11}{12}$ h

b) Answers may vary.

$2\frac{2}{3}-1\frac{3}{4}\approx 3-2=1$ h

13. Answers may vary. For example, you need to add or subtract parts of the whole that are the same size.

14. $\frac{1}{4}$ is larger because the diagram is larger.

$\frac{1}{2}$ would be larger if the diagrams were the same size.

15. a) Answers may vary. Rowena is correct. She regrouped $3\frac{1}{5}$ to $2\frac{6}{5}$.

b) $3\frac{1}{5}-\frac{3}{5}=\frac{16}{5}-\frac{3}{5}=\frac{13}{5}=2\frac{3}{5}$

16. a) $\frac{1}{2}$ of the two rooms is used for Aboriginal peoples.

b) $1\frac{1}{8}$ of the two rooms is used for settlement in Canada.

c) $\frac{1}{8}$ more of the two rooms is used for Aboriginal peoples.

d) $\frac{3}{4}$ more of the two rooms is used for settlement in Canada.