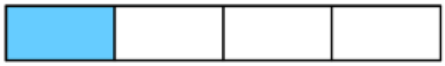
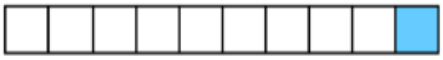
Solutions

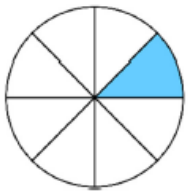
Page 14 #s 1, 3, 4, 6ace, 7, 10, 11, 12, 13aceg

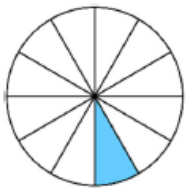
Page 16 #s 17ef, 19ace, 20ace, 21, 22aceg

1. State the unit fraction that is represented in each diagram.

a) 

b) 

c) 

d) 

a) $\frac{1}{4}$

c) $\frac{1}{8}$

b) $\frac{1}{10}$

d) $\frac{1}{12}$

3. Place a greater than sign (>) or less than sign (<) between each pair of fractions to make a true statement.

a) $\frac{1}{2} \square \frac{1}{3}$ b) $\frac{1}{6} \square \frac{1}{4}$ c) $\frac{1}{10} \square \frac{1}{3}$ d) $\frac{1}{40} \square \frac{1}{50}$ e) $\frac{1}{25} \square \frac{1}{24}$

a) $\frac{1}{2} > \frac{1}{3}$

c) $\frac{1}{10} < \frac{1}{3}$

b) $\frac{1}{6} < \frac{1}{4}$

d) $\frac{1}{40} > \frac{1}{50}$

e) $\frac{1}{25} < \frac{1}{24}$

Larger the denominator, the smaller the unit fraction.

4. Order the following unit fractions from least to greatest.

$$\frac{1}{5}, \frac{1}{9}, \frac{1}{2}, \frac{1}{11}, \frac{1}{4}, \frac{1}{20}, \frac{1}{100}$$

Bigger denominator → smaller UNIT fraction

$$\frac{1}{100}, \frac{1}{20}, \frac{1}{11}, \frac{1}{9}, \frac{1}{5}, \frac{1}{4}, \frac{1}{2}$$

6. Determine the value of each of the following.

a) $\frac{1}{2}$ of 80 c) $\frac{1}{5}$ of 100 e) $\frac{1}{9}$ of 117

Amount ÷ denominator

a) $80 \div 2 = 40$

c) $100 \div 5 = 20$

e) $117 \div 9 = 13$

7. Blair visited Nunavut for 24 days to learn about the territory's rich traditions of art and creativity. He spent half of his time in Iqaluit, where he attended the Nunavut Arts Festival. He spent one third of his visit in the community of Arviat, which is well known for its artistic qualities.

a) How many days did Blair spend in Iqaluit?

b) How many days did he spend in Arviat?

c) How many days of Blair's visit to Nunavut were spent in places other than Iqaluit and Arviat?

a) Iqaluit → $\frac{1}{2}$ of 24

$= 24 \div 2$

$= 12$ days

b) Arviat → $\frac{1}{3}$ of 24

$= 24 \div 3$

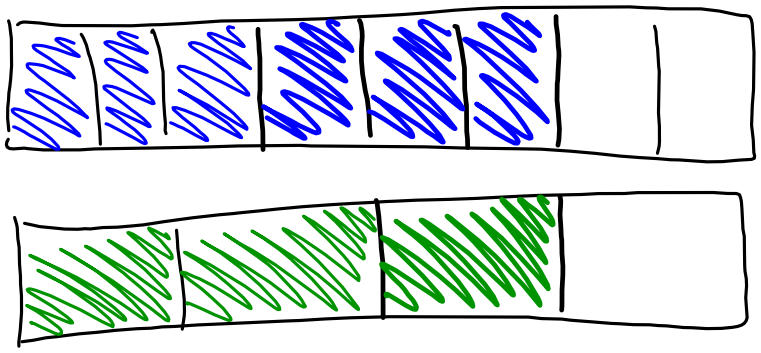
$= 8$ days

c) Days spent elsewhere

$= 24 - 12 - 8$

$= 4$ days

10. Use a visual representation to show why $\frac{6}{8}$ is equivalent to $\frac{3}{4}$.



6/8

3/4

11. Write an equivalent fraction using the given description.

a) $\frac{1}{2}$ using a denominator of 6

b) $\frac{2}{3}$ using a numerator of 8

c) $\frac{4}{10}$ using a denominator of 5

d) $\frac{16}{24}$ using a denominator of 3

a) $\frac{1}{2} = \frac{?}{6}$ (×3)

$1 \times 3 = 3$

$\Rightarrow \frac{1}{2} = \frac{3}{6}$

b) $\frac{2}{3} = \frac{8}{?}$ (×4)

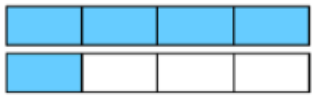
$3 \times 4 = 12$

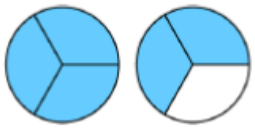
$\Rightarrow \frac{2}{3} = \frac{8}{12}$

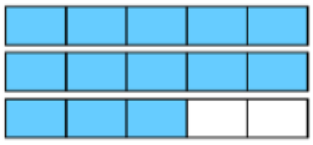
c) $\frac{4}{10} = \frac{?}{5}$ (÷2)

d) $\frac{16}{24} = \frac{?}{3}$ (÷8)

12. State the improper fraction represented by the shaded portion in each diagram.

a) 

b) 

c) 

a) $1\frac{1}{4}$ b) $1\frac{2}{3}$ c) $2\frac{3}{5}$

13. Place a greater than sign (>) or less than sign (<) between each pair of fractions to make a true statement.

a) $\frac{1}{3} \square \frac{2}{3}$ c) $\frac{5}{2} \square \frac{7}{2}$ e) $\frac{1}{4} \square \frac{5}{12}$ g) $\frac{1}{7} \square \frac{3}{10}$

a) $\frac{1}{3} < \frac{2}{3}$

c) $\frac{5}{2} < \frac{7}{2}$

e) $\frac{1}{4} \times \frac{3}{3} = \frac{3}{12}$

$\frac{3}{12} < \frac{5}{12}$

$\frac{1}{4} < \frac{5}{12}$

g) $\frac{1}{7} \times \frac{3}{3} = \frac{3}{21}$

$\frac{3}{21} < \frac{3}{10}$ $\Rightarrow$ $\frac{1}{7} < \frac{3}{10}$

17. Order each of the following from least to greatest.

e) $\frac{2}{3}, -\frac{1}{3}, -\frac{10}{15}, -\frac{1}{2}, \frac{1}{4}$ f) $\frac{4}{5}, \frac{-2}{3}, -\frac{3}{4}, \frac{-1}{-3}, \frac{3}{-2}$

$\frac{2}{3} = 0.666...$

$-\frac{1}{3} = -0.333...$

$\frac{-10}{15} = -0.666...$

$-\frac{1}{2} = -0.5$

$\frac{1}{4} = 0.25$

$\Rightarrow -\frac{10}{15}, -\frac{1}{2}, -\frac{1}{3}, \frac{1}{4}, \frac{2}{3}$

$\frac{4}{5} = 0.8$

$\frac{-2}{3} = -0.666...$

$\frac{-3}{4} = -0.75$

$\frac{-1}{-3} = 0.333...$ positive

$\frac{3}{-2} = -1.5$

$\Rightarrow \frac{3}{-2}, \frac{-3}{4}, \frac{-2}{3}, \frac{-1}{-3}, \frac{4}{5}$

19. Express each improper fraction as a mixed number.

a) $\frac{7}{4}$ c) $\frac{20}{13}$ e) $-\frac{36}{7}$

a) $7 \div 4 = 1 \text{ r } 3$

$= 1\frac{3}{4}$

c) $20 \div 13 = 1 \text{ r } 7$

$= 1\frac{7}{13}$

e) $-36 \div 7 = -5 \text{ r } 1$

$= -5\frac{1}{7}$

20. Express each mixed number as an improper fraction.

a) $2\frac{3}{4}$ c) $-1\frac{6}{7}$ e) $-10\frac{4}{5}$

$$\frac{(\text{whole} \times \text{denominator}) \pm \text{numerator}}{\text{denominator}}$$

a) $\frac{(2\times4)+3}{4}$ $= \frac{11}{4}$

c) $\frac{(-1\times7)-6}{7}$ $= \frac{-13}{7}$

e) $\frac{(-10\times5)-4}{5}$ $= \frac{-54}{5}$

21. Order each the following from least to greatest.

a) $1\frac{2}{3}, \frac{3}{5}, 1\frac{1}{4}, \frac{3}{4}, 2\frac{1}{2}$ b) $-5\frac{3}{4}, -2\frac{7}{8}, 1\frac{5}{6}, -2, \frac{13}{6}$

$1\frac{2}{3} = 1.666\ldots$

$\frac{3}{5} = 0.6$

$1\frac{1}{4} = 1.25$

$\frac{3}{4} = 0.75$

$2\frac{1}{2} = 2.5$

$\Rightarrow \frac{3}{5}, \frac{3}{4}, 1\frac{1}{4}, 1\frac{2}{3}, 2\frac{1}{2}$

$-5\frac{3}{4} = -5.75$

$-2\frac{7}{8} = -2.875$

$1\frac{5}{6} = 1.8333\ldots$

$-2 = -2$

$\frac{13}{6} = 2.1666\ldots$

$\Rightarrow -5\frac{3}{4}, -2\frac{7}{8}, -2, 1\frac{5}{6}, \frac{13}{6}$

22. Place a greater than sign (>), less than sign (<) or equals sign (=) between each value to make a true statement.

a) $-\frac{5}{8} \square -\frac{7}{8}$ c) $-\frac{9}{10} \square \frac{14}{20}$ e) $-\frac{4}{3} \square \frac{-6}{5}$ g) $-\frac{1}{4} \square \frac{-1}{-4}$

a) $-\frac{5}{8} > -\frac{7}{8}$ Same size pieces, more negative on the right, therefore its smaller.

c) $-\frac{9}{10} < \frac{14}{20}$ Negative is smaller than a positive.

e) $-\frac{4}{3} = -1.\overline{3}$

$-\frac{6}{5} = -1.2$

$\Rightarrow -\frac{4}{3} < -\frac{6}{5}$ because $-1.\overline{3}$ is "more negative".