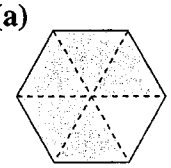
Exercise 2.1

answers on p. 419

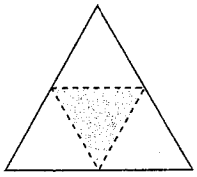
[09-05-12-N6]

1. Each of the given figures is divided into equal parts. For each figure, write down the fraction represented by the shaded area.

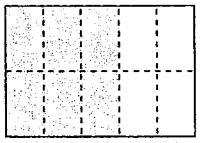
(a)



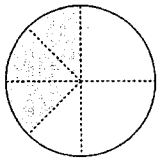
(b)



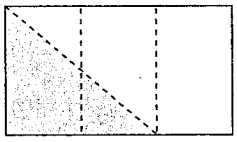
(c)



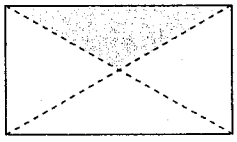
(d)



(e)



(f)

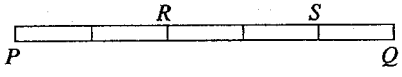


2. Each bar is divided into equal parts. Copy and complete the following.

(a)

(i) $AC =$ ____ of AB **(ii)** $AD =$ ____ of AB

(b)



(i) $PR =$ ____ of PQ **(ii)** $PS =$ ____ of PQ

3. Copy and complete the following.

(a) $\frac{3}{7} = \frac{\quad}{56}$ $\quad \frac{7}{8} = \frac{\quad}{56}$

(b) $\frac{4}{13} = \frac{\quad}{78}$ $\quad \frac{5}{6} = \frac{\quad}{78}$

(c) $\frac{9}{17} = \frac{\quad}{187}$ $\quad \frac{3}{11} = \frac{\quad}{187}$

(d) $\frac{13}{15} = \frac{\quad}{105}$ $\quad \frac{9}{7} = \frac{\quad}{105}$

(e) $\frac{11}{12} = \frac{\quad}{156}$ $\quad \frac{12}{13} = \frac{\quad}{156}$

(f) $\frac{7}{12} = \frac{\quad}{180}$ $\quad \frac{6}{15} = \frac{\quad}{180}$

4. Rewrite each of the following improper fractions as a mixed number.

(a) $\frac{5}{2}$ **(b)** $\frac{9}{4}$ **(c)** $\frac{15}{2}$

(d) $\frac{18}{5}$ **(e)** $\frac{182}{48}$ **(f)** $\frac{371}{36}$

(g) $\frac{123}{11}$ **(h)** $\frac{246}{13}$ **(i)** $\frac{327}{120}$

5. Rewrite each of the following mixed numbers as an improper fraction.

(a) $2\frac{1}{2}$ **(b)** $4\frac{1}{3}$ **(c)** $9\frac{3}{11}$

(d) $11\frac{4}{5}$ **(e)** $12\frac{7}{13}$ **(f)** $17\frac{5}{16}$

(g) $64\frac{31}{42}$ **(h)** $78\frac{11}{23}$ **(i)** $37\frac{47}{121}$

6. Write down the quotients as fractions for the following divisions.

(a) $7 \div 3$ **(b)** $3 \div 5$ **(c)** $3 \div 7$

(d) $11 \div 10$ **(e)** $22 \div 8$ **(f)** $21 \div 49$

7. Reduce each of the following fractions to its lowest terms.

(a) $\frac{12}{15}$ **(b)** $\frac{5}{30}$ **(c)** $\frac{14}{35}$

(d) $\frac{30}{36}$ **(e)** $\frac{21}{49}$ **(f)** $\frac{42}{60}$

(g) $\frac{26}{39}$ **(h)** $\frac{135}{165}$ **(i)** $\frac{70}{210}$

(j) $\frac{90}{324}$ **(k)** $\frac{630}{672}$ **(l)** $\frac{663}{1\,173}$

8. In each case, which is greater between the two fractions?

(a) $\frac{2}{3}, \frac{7}{10}$ **(b)** $\frac{2}{5}, \frac{15}{36}$

(c) $\frac{2}{8}, \frac{18}{68}$ **(d)** $\frac{10}{12}, \frac{30}{36}$

(e) $\frac{7}{21}, \frac{14}{40}$ **(f)** $\frac{63}{78}, \frac{135}{165}$

9. In each case, determine which fraction is smaller.

(a) $\frac{3}{8}, \frac{6}{15}$ **(b)** $\frac{3}{8}, \frac{1}{2}$ **(c)** $\frac{18}{12}, \frac{26}{18}$

(d) $\frac{36}{31}, \frac{34}{29}$ **(e)** $\frac{11}{90}, \frac{16}{135}$ **(f)** $\frac{21}{49}, \frac{22}{50}$

10. For each of the following, arrange the fractions in ascending order.

(a) $\frac{17}{23}, \frac{18}{24}, \frac{20}{27}$ **(b)** $\frac{23}{27}, \frac{24}{28}, \frac{27}{32}$

(c) $\frac{30}{27}, \frac{50}{44}, \frac{49}{43}$ **(d)** $\frac{32}{35}, \frac{96}{106}, \frac{47}{53}$

(e) $\frac{123}{171}, \frac{82}{110}, \frac{500}{342}$ **(f)** $\frac{64}{78}, \frac{128}{158}, \frac{184}{234}$

4. $q = 3p - 1$

5. (a) $m = n^2$ (b) $m = 3n - 2$ (c) $m = 2n$
(d) $m = 6n - 1$ (e) $m = 5n - 3$ (f) $m = 7n$
(g) $m = 86 - 5n$ (h) $m = \frac{384}{2^{n-1}}$

6. $m = 2T + 1$

7. $D = 2S + 2$

Exercise 1.9 *(p. 27)*

1. (a) Commutative law of addition
(b) Associative law of addition
(c) Associative law of addition
(d) Commutative law of multiplication
(e) Associative law of multiplication
(f) Associative law of multiplication

2. (a) $(3 \times 4) + (3 \times 5)$ (b) $(3 \times 7) + (3 \times 2)$
(c) $(3 \times 8) + (3 \times 4)$ (d) $(5 \times 4) + (2 \times 4)$
(e) $(3 \times 7) + (1 \times 7)$ (f) $(7 \times 11) + (4 \times 11)$

3. (a) 7 (b) 7 (c) 6
(d) 2 (e) 20 (f) 5

4. (a) True, $a \times 1 = 1 \times a = a$
(b) True, $a + 0 = 0 + a = a$

5. (b) is equal to (iv) by the commutative property of addition.
(c) is equal to (vii) by the distributive property.
(d) is equal to (iii) by the commutative property of multiplication.
(e) is equal to (ii) by the commutative property of addition.
(f) is equal to (viii) by the associative property of multiplication.
(g) is equal to (v) by the distributive property.
(h) is equal to (vi) by the associative property of multiplication.
(i) is equal to (ix) by the commutative property of addition.
(j) is equal to (x) by the associative property of addition.

Chapter 2

Exercise 2.1 *(p. 37)*

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

2. (a) (i) $\frac{1}{4}$ (ii) $\frac{3}{4}$
(b) (i) $\frac{2}{5}$ (ii) $\frac{4}{5}$

3. (a) 24, 49 (b) 24, 65 (c) 99, 51
(d) 91, 135 (e) 143, 144 (f) 105, 72

4. (a) $2\frac{1}{2}$ (b) $2\frac{1}{4}$ (c) $7\frac{1}{2}$
(d) $3\frac{3}{5}$ (e) $3\frac{19}{24}$ (f) $10\frac{11}{36}$
(g) $11\frac{2}{11}$ (h) $18\frac{12}{13}$ (i) $2\frac{29}{40}$

5. (a) $\frac{5}{2}$ (b) $\frac{13}{3}$ (c) $\frac{102}{11}$
(d) $\frac{59}{5}$ (e) $\frac{163}{13}$ (f) $\frac{277}{16}$
(g) $\frac{2\ 719}{42}$ (h) $\frac{1\ 805}{23}$ (i) $\frac{4\ 524}{121}$

6. (a) $\frac{7}{3}$ (b) $\frac{3}{5}$ (c) $\frac{3}{7}$
(d) $\frac{11}{10}$ (e) $\frac{22}{8}$ (f) $\frac{21}{49}$

7. (a) $\frac{4}{5}$ (b) $\frac{1}{6}$ (c) $\frac{2}{5}$
(d) $\frac{5}{6}$ (e) $\frac{3}{7}$ (f) $\frac{7}{10}$
(g) $\frac{2}{3}$ (h) $\frac{9}{11}$ (i) $\frac{1}{3}$
(j) $\frac{5}{18}$ (k) $\frac{15}{16}$ (l) $\frac{13}{23}$

8. (a) $\frac{7}{10}$ (b) $\frac{15}{36}$ (c) $\frac{18}{68}$
(d) equal (e) $\frac{14}{40}$ (f) $\frac{135}{165}$

9. (a) $\frac{3}{8}$ (b) $\frac{3}{8}$ (c) $\frac{26}{18}$
(d) $\frac{36}{31}$ (e) $\frac{16}{135}$ (f) $\frac{21}{49}$

10. (a) $\frac{17}{23}, \frac{20}{27}, \frac{18}{24}$ (b) $\frac{27}{32}, \frac{23}{27}, \frac{24}{28}$ (c) $\frac{30}{27}, \frac{50}{44}, \frac{49}{43}$
(d) $\frac{47}{53}, \frac{96}{106}, \frac{32}{35}$ (e) $\frac{123}{171}, \frac{82}{110}, \frac{500}{342}$ (f) $\frac{184}{234}, \frac{128}{158}, \frac{64}{78}$