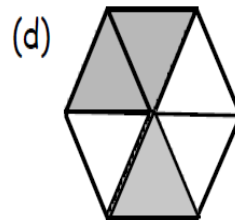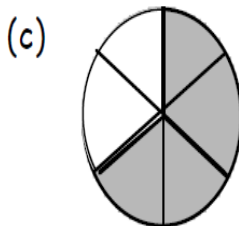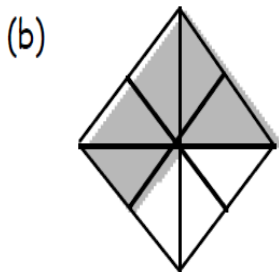# S1 Daily Homework Booklet Oct to Dec

Fractions Introduction

1. For each shape, say what fraction has been shaded :-

(a)

(b)

(c)

(d)
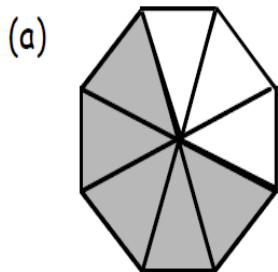
2. Simplify each of the following fractions :-

(a) $\dfrac{7}{14}$

(b) $\dfrac{3}{12}$

(c) $\dfrac{14}{42}$

(d) $\dfrac{11}{88}$

(e) $\dfrac{12}{78}$

(f) $\dfrac{6}{84}$

(g) $\dfrac{25}{625}$

(h) $\dfrac{27}{126}$

3. Find :-

(a) $\dfrac{1}{3}$ of 66

(b) $\dfrac{3}{4}$ of 48

(c) $\dfrac{8}{9}$ of 27

(d) $\dfrac{5}{7}$ of 616

Fractions Solutions

1. a $\dfrac{5}{8}$ b $\dfrac{5}{8}$ c $\dfrac{4}{6}$ $\left(\dfrac{2}{3}\right)$ d $\dfrac{1}{2}$

2. a $\dfrac{1}{2}$ b $\dfrac{1}{4}$ c $\dfrac{1}{3}$ d $\dfrac{1}{8}$

   e $\dfrac{2}{13}$ f $\dfrac{1}{14}$ g $\dfrac{1}{25}$ h $\dfrac{3}{14}$

Fractions Add/Subtract

1. Express each sum as a fraction in its simplest form.

(a) $\dfrac{1}{5}+\dfrac{3}{5}$ (b) $\dfrac{2}{5}+\dfrac{1}{10}$ (c) $\dfrac{3}{4}+\dfrac{1}{8}$ (d) $\dfrac{1}{6}+\dfrac{2}{3}$

(e) $\dfrac{1}{9}+\dfrac{2}{3}$ (f) $\dfrac{1}{3}+\dfrac{1}{4}$ (g) $\dfrac{3}{5}+\dfrac{1}{4}$ (h) $\dfrac{1}{4}+\dfrac{1}{6}$

3. Express each difference as a fraction in its simplest form.

(a) $\dfrac{3}{4}-\dfrac{1}{4}$ (b) $\dfrac{1}{2}-\dfrac{1}{6}$ (c) $\dfrac{5}{6}-\dfrac{2}{3}$ (d) $\dfrac{11}{12}-\dfrac{5}{6}$

(e) $\dfrac{11}{12}-\dfrac{2}{3}$ (f) $\dfrac{1}{2}-\dfrac{1}{16}$ (g) $\dfrac{2}{3}-\dfrac{1}{4}$ (h) $\dfrac{1}{2}-\dfrac{2}{5}$

Fractions Add/Subtract

4. Express each sum as a fraction in its simplest form.

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

(e) $3\frac{5}{8}+2\frac{1}{4}$ (f) $5\frac{2}{3}+2\frac{3}{4}$ (g) $1\frac{3}{5}+1\frac{3}{5}$ (h) $2\frac{3}{8}+2\frac{5}{6}$

6. Express each difference as a fraction in its simplest form.

(a) $3\frac{3}{4}-1\frac{1}{2}$ (b) $6\frac{7}{8}-4\frac{1}{3}$ (c) $2\frac{4}{5}-1\frac{1}{4}$ (d) $4\frac{7}{12}-1\frac{1}{3}$

(e) $5\frac{4}{5}-1\frac{3}{4}$ (f) $6\frac{11}{12}-1\frac{5}{6}$ (g) $4\frac{2}{3}-1\frac{1}{7}$ (h) $3\frac{3}{4}-1\frac{1}{6}$

Fractions Solutions 1

1. (a) $\dfrac{4}{5}$ (b) $\dfrac{1}{2}$ (c) $\dfrac{7}{8}$ (d) $\dfrac{5}{6}$ (e) $\dfrac{7}{9}$ (f) $\dfrac{7}{12}$

    (g) $\dfrac{17}{20}$ (h) $\dfrac{5}{12}$

3. (a) $\dfrac{1}{2}$ (b) $\dfrac{1}{3}$ (c) $\dfrac{1}{6}$ (d) $\dfrac{1}{12}$ (e) $\dfrac{1}{4}$ (f) $\dfrac{7}{16}$

    (g) $\dfrac{5}{12}$ (h) $\dfrac{1}{10}$

4. (a) $2\dfrac{3}{4}$ (b) $3\dfrac{1}{4}$ (c) $3\dfrac{5}{8}$ (d) $5\dfrac{1}{3}$ (e) $5\dfrac{7}{8}$ (f) $8\dfrac{5}{12}$

    (g) $3\dfrac{1}{5}$ (h) $5\dfrac{5}{24}$

6. (a) $2\dfrac{1}{4}$ (b) $2\dfrac{13}{24}$ (c) $1\dfrac{11}{20}$ (d) $3\dfrac{1}{4}$ (e) $4\dfrac{1}{20}$ (f) $5\dfrac{1}{12}$

    (g) $3\dfrac{11}{21}$ (h) $2\dfrac{7}{12}$

Fractions Multiply/Divide

1. Express each product as a fraction in its simplest form:

   (a) $\dfrac{1}{4} \times \dfrac{4}{7}$ (b) $\dfrac{1}{3} \times \dfrac{3}{10}$ (c) $\dfrac{1}{2} \times \dfrac{4}{7}$ (d) $\dfrac{2}{3} \times \dfrac{1}{8}$

   (e) $\dfrac{4}{5} \times \dfrac{1}{16}$ (f) $\dfrac{6}{7} \times \dfrac{2}{3}$ (g) $\dfrac{3}{5} \times \dfrac{10}{21}$ (h) $\dfrac{3}{8} \times \dfrac{4}{21}$

2. Express each product as a fraction in its simplest form:

   (a) $1\dfrac{1}{4} \times 1\dfrac{1}{3}$ (b) $1\dfrac{1}{4} \times 1\dfrac{2}{3}$ (c) $2\dfrac{1}{2} \times 2\dfrac{1}{2}$ (d) $1\dfrac{3}{4} \times 1\dfrac{2}{3}$

   (e) $3\dfrac{1}{4} \times 1\dfrac{1}{5}$ (f) $1\dfrac{1}{3} \times 2\dfrac{2}{3}$ (g) $1\dfrac{1}{15} \times 2\dfrac{1}{2}$ (h) $3\dfrac{3}{4} \times 1\dfrac{1}{5}$

3. Express as a single fraction:

   (a) $\dfrac{1}{4} \div \dfrac{1}{3}$ (b) $\dfrac{2}{5} \div \dfrac{2}{7}$ (c) $\dfrac{4}{5} \div \dfrac{3}{4}$ (d) $\dfrac{3}{7} \div \dfrac{2}{5}$

   (e) $\dfrac{5}{12} \div \dfrac{5}{3}$ (f) $\dfrac{5}{9} \div \dfrac{1}{3}$ (g) $\dfrac{2}{5} \div \dfrac{9}{10}$ (h) $\dfrac{3}{7} \div \dfrac{11}{14}$

   (i) $\dfrac{4}{9} \div \dfrac{2}{3}$ (j) $\dfrac{2}{5} \div \dfrac{4}{5}$ (k) $\dfrac{24}{35} \div \dfrac{20}{21}$ (l) $\dfrac{6}{25} \div \dfrac{9}{20}$

Fractions Solutions 2

1. (a) $\dfrac{1}{7}$ (b) $\dfrac{1}{10}$ (c) $\dfrac{2}{7}$ (d) $\dfrac{1}{12}$ (e) $\dfrac{1}{20}$ (f) $\dfrac{4}{7}$

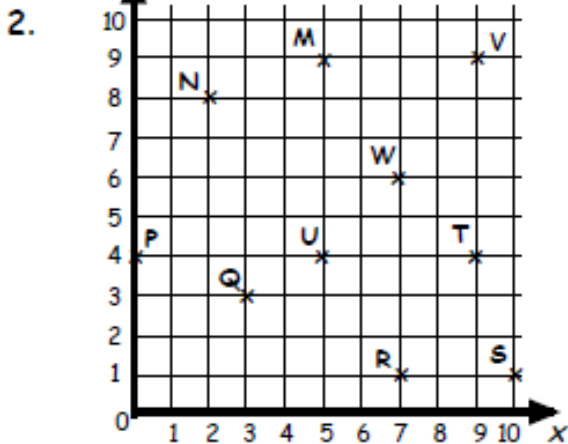   (g) $\dfrac{2}{7}$ (h) $\dfrac{1}{14}$

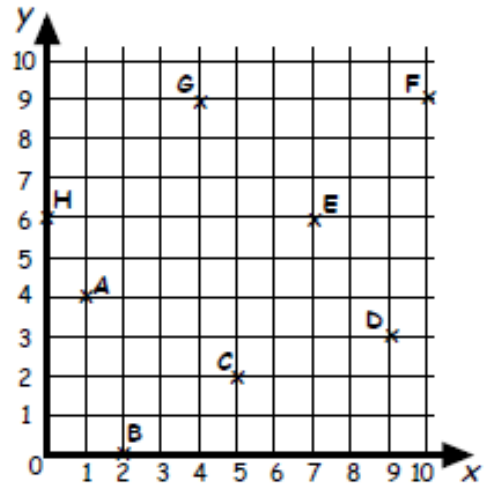2. (a) $1\dfrac{2}{3}$ (b) $2\dfrac{1}{12}$ (c) $6\dfrac{1}{4}$ (d) $2\dfrac{11}{12}$ (e) $3\dfrac{9}{10}$ (f) $3\dfrac{5}{9}$

   (g) $2\dfrac{2}{3}$ (h) $4\dfrac{1}{2}$

3. (a) $\dfrac{3}{4}$ (b) $1\dfrac{2}{5}$ (c) $1\dfrac{1}{15}$ (d) $1\dfrac{1}{14}$ (e) $\dfrac{1}{4}$ (f) $1\dfrac{2}{3}$

   (g) $\dfrac{4}{9}$ (h) $\dfrac{6}{11}$ (i) $\dfrac{2}{3}$ (j) $\dfrac{1}{2}$ (k) $\dfrac{18}{25}$ (l) $\dfrac{8}{15}$

Coordinates

1. Write down the capital letter representing each point and put its coordinates next to it.

    For example :- C(5, 2).

2.

    a   Which point has coordinates :-

    (i)   (7, 6)   (ii)   (0, 4)

    (iii) (3, 3)   (iv)   (9, 4) ?

    b   Write down the coordinates of :-

    (i)   N   (ii)   M

    (iii) S   (iv)   R.

    c   Four of the points can be joined to form a rectangle.

    (i) Which four points ?   (ii)   Write down their coordinates.

3. a   Draw a coordinate grid like the one in question 2 on squared paper.

    Make the horizontal and vertical axes both go up from 0 to 10.

    b   Mark with a cross the following six points :-

    C(3, 2) D(7, 2) E(10, 5) F(7, 8) G(3, 8) H(0, 5).

    c   Join C to D to E to F to G to H and back to C.

    d   What shape have you formed ?

Coordinates Solutions

Exercise 1

1. A(1,4) B(2,0) C(5,2) D(9,3)
   E(7,6) F(10,9). G(4,9) H(0,6).
2. a (i) W   (ii) P   (iii) Q   (iv) T
   b (i) (2,8) (ii) (5,9)   (iii) (10,1) (iv) (7,1)
   c (i) MUTV
      (ii) M(5,9) U(5,4) T(9,4) V(9,9)
3. a/b/c - Check Drawing
   d Hexagon

Coordinates- all 4 Quadrants

1. Write down the coordinates of :–

   a each point shown in the diagram.

   b the point on the *y* axis.

   c all the points with the same *x* coordinate.

   d all the points with the same *y* coordinate.

   e the point with the same *x* and *y* coordinates.

   f the fourth vertex, P of the rectangle DABP.

A(-3, 4)   B

DO NOT WRITE ON THIS

G   E   C   D   F
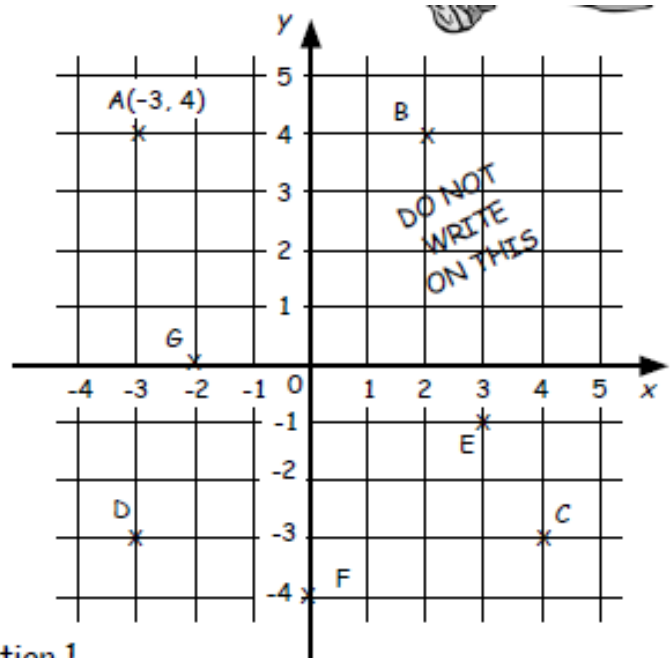
2. a Copy the same axes grid from question 1.

   b Plot the points P(2, 3), Q(4, 0), R(2, –3), S(–2, –3), T(–4, 0).

   c Plot the point U, where PQRSTU are the vertices of a hexagon.

3. Look at the diagram shown.

   a Write down the coordinates of R, S and T.

   b Reflect RST over the *x*-axis and write down the coordinates of R'S'T'.

   c Reflect R'S'T' over the *y*-axis and write down the coordinates of R"S"T".

R   S   T
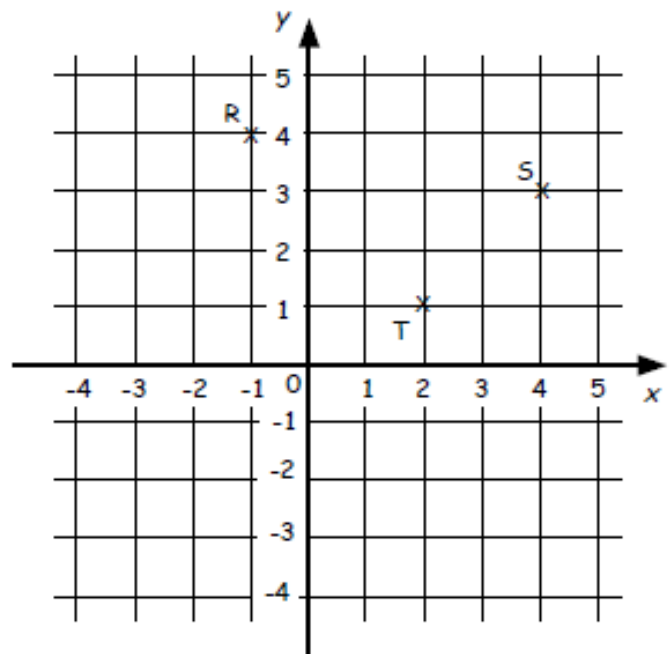
4. The vertices of a triangle reflected over the *y*-axis and then the *x*-axis are A"(1, 5), B"(7, 0) and C"(2, 2).

   State the coordinates of the original triangle ABC.

Coordinates- all 4 Quadrants Solutions

Exercise 1 - Coordinates in 4 Quadrants

1. a A(-3,4), B(2,4), C(4,-3), D(-3,-3),
      E(3,-1), F(0,-4), G(-2,0)
   b F   c A & D   d A&B, D&C
   e D   f P(-2,-3)
2. a/b See diagram   c U(-2,3)
3. a R(-1,4), S(4,3), T(2,1)
   b see diagram - R'(-1,-4), S'(4,-3), T'(2,-1)
   c see diagram - R"(1,-4), S"(-4,-3), T"(-2,-1)
4. A(-1,-5), B(-7,0), C(-2,-2)

Percentages

Exercise 6

1. Write down the simplest fraction for each of the following percentages :-

   (a) 75%   (b) 30%   (c) 80%   (d) 70%

   (e) $33\frac{1}{3}$%   (f) $66\frac{2}{3}$%   (g) 40%   (h) 30%

2. Find without a calculator :-

   (a) 50% of £9   (b) $33\frac{1}{3}$% of 360 metres   (c) 80% of 90 €

   (d) 25% of 300p   (e) 60% of 240 p   (f) $66\frac{2}{3}$% of 121 kg

   (g) 70% of 520 cm   (h) 75% of 9600 kg   (i) 75% of £440

   (j) 30% of 3100 km   (k) 75% of £5   (l) $66\frac{2}{3}$% of 1·2 kg

Percentages Solutions

1. a $\dfrac{3}{4}$ b $\dfrac{3}{10}$ c $\dfrac{4}{5}$ d $\dfrac{7}{10}$

   e $\dfrac{1}{3}$ f $\dfrac{2}{3}$ g $\dfrac{2}{5}$ h $\dfrac{3}{10}$

2. a £4·50   b 120 m   c 72€   d 75p

   e 144p   f 80 kg   g 364 cm   h 7200 kg

   i £330   j 930 km   k £3·75   l 0·8 kg

Algebra

Exercise 1

1. Copy and simplify :-

   (a) $8x + 4x$

   (b) $3y - 2y$

   (c) $9h + h$

   (d) $12p - p$

   (e) $5x + 3x + 4x$

   (f) $9w + 5w + w$

   (g) $c + c + c$

   (h) $8k + 5k - 10k$

   (i) $15q + 9q - 19q$

   (j) $83d + 22d - 91d$

   (k) $20z - 17z + z$

   (l) $31h - 25h - 6h$

Exercise 3

1. If $a = 4$ and $b = 5$, find the value of :-

   (a) $a + b$

   (b) $a - b$

   (c) ab

   (d) $5a - 3b$

   (e) $8b \div 4$

   (i) $7a \div 2$

   (j) $4xy \div 20$

   (k) $xy \div 40$

Algebra

1. Copy each equation and solve :-

(a) $x + 4 = 7$

(b) $y + 2 = 12$

(c) $7 + y = 8$

(d) $p - 4 = 6$

(e) $5 - x = 13$

(f) $9 - w = 6$

(g) $c - 12 = 16$

(h) $14 - g = 0$

(i) $15 + e = 17$

(j) $8 + x = 7$

(k) $z - 3 = -1$

(l) $31 + a = -10$

2. Copy and simplify :-

(a) $2a = 10$

(b) $3y = 15$

(c) $9h = 81$

(d) $12p = 0$

(e) $5x = 75$

(f) $19w = 76$

(g) $11z = 121$

(h) $8k = 864$

(i) $15q = 300$

(j) $10k = 3000$

(k) $20z = 6000$

(l) $6h = 27$

Exercise 5

1. Find the value of each variable by solving the equations :-

(a) $2x + 4 = 16$

(b) $3y + 1 = 13$

(c) $5y + 4 = 9$

(d) $8p - 1 = 23$

(e) $2x - 7 = 13$

(f) $9 + 2w = 15$

(g) $7c - 12 = 9$

(h) $14 - 5g = 4$

(i) $15 - 4e = -1$

(j) $8 + 4x = 0$

(k) $12z - 3 = 57$

(l) $31 - 2a = -2$

Algebra

2. Solve these equations by removing an appropriate number of x's from each side first :-

(a) $4x + 1 = 2x + 7$

(b) $3x + 5 = x + 15$

(c) $6x + 7 = 5x + 13$

(d) $10x - 6 = 7x + 9$

(e) $5x - 1 = 2x + 11$

(f) $6x - 1 = x + 19$

(g) $12x - 4 = 8x + 24$

(h) $10x - 1 = 8x + 6$

(i) $4x + 4 = x + 12$

(j) $6x + 3 = 2x + 10$

(k) $9x - 2 = 4x + 19$

(l) $7x - 7 = x + 1$

3. These equations look a little "different".   Solve them in the same way as shown above :-

(a) $3x = 2x + 6$

(b) $5x = x + 20$

(c) $7x = 4x + 30$

(d) $9x = 8x + 6$

(e) $3x = x + 13$

(f) $5x - 12 = 3x$

(g) $4x - 15 = x$

(h) $3x + 6 = x$

(i) $10x - 21 = 7x$

Algebra Solutions

1. a 12x b y c 10h d 11p
   e 12x f 15w g 3c h 3k
   i 5q j 14d k 4z l 0

1. a 9   b -1   c 20   d 5
   e 10   f 14   g 4   h $\frac{1}{2}$

1. a $x = 3$ b $y = 10$ c $y = 1$
   d $p = 10$ e $x = 2$ f $w = 3$
   g $c = 28$ h $g = 14$ i $e = 2$
   j $x = -1$ k $z = 2$ l $a = -1$
2. a $a = 5$ b $y = 5$ c $h = 9$
   d $p = 0$ e $x = 15$ f $w = 4$
   g $z = 11$ h $k = 108$ i $q = 20$
   j $k = 300$ k $z = 300$ l $h = 4\frac{1}{2}$

Algebra Solutions

1. a $x = 6$ b $y = 4$ c $y = 1$
   d $p = 3$ e $x = 10$ f $w = 3$
   g $c = 3$ h $g = 2$ i $e = 2$
   j $x = -2$ k $z = 5$ l $a = 5$

2. a 3   b 5   c 6   d 5
   e 4   f 4   g 7   h 3·5

   i $2\dfrac{2}{3}$ j $1\dfrac{3}{4}$ k $4\dfrac{1}{5}$ l $1\dfrac{1}{3}$

3. a 6   b 5   c 10
   d 6   e 6·5   f 6
   g 5   h −3   i 7