S2 Block Test 1
Revision Booklet

DST

1. Choose the appropriate formula and show all working in each of the following :-
   - a Pauline drove 300 kilometres at 60 km/hr. How long did she take ?
   - b Arnie flew at 120 mph for 4 hours. How far had Arnie flown ?
   - c Kevin took 4 hours to cycle 60 kilometres. How fast was he cycling ?

2. Change each of the following times to decimals :-
   - a 48 mins b 3 hrs 12 mins c 1 hr 42 mins.

3. Change each time to hours and minutes :-
   - a 2·25 hours b 0·45 hours c 5·05 hours.

4. a Fred takes three quarters of an hour to drive 42 km to work.
   What is Fred's average speed ?
   - b Jeri drives at 80 km/hr and takes 1 hour and 12 minutes to get to work.
   How far does Jeri drive to work ?
   - c Terry the tortoise takes 40 minutes to crawl 16 metres.
   Sally Slug slithers 900 centimetres in 30 minutes.
   How much faster is Terry than Sally ?

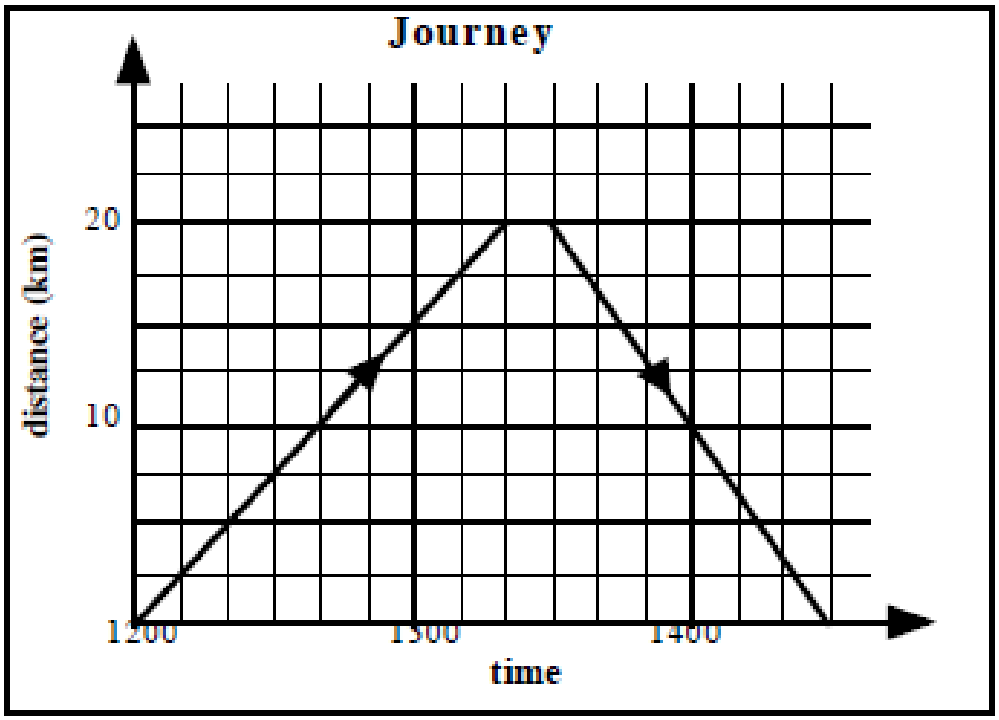
5. Last Sunday, Chelsea left home at Noon and cycled 20 kilometres to her office.
   She arrived at 1·20 pm and spent 10 minutes collecting the papers she had forgotten.
   She then cycled home and arrived at 2.30 pm.
   - a Show all the given information on a distance-time graph.
   - b Calculate the speed of her journey :- (i) to the office (ii) home.

Solutions

Review - Revisit - Revise Exercise 15

1. a 5 hrs b 480 mile c 15 km/hr
2. a 0·8 b 3·2 c 1·7
3. a 2 hr 15 min b 27 min c 5 hr 3 min
4. a 56 km/hr b 96 km
   c Terry - 24 m/hr, Sally - 18 m/hr (Terry) 6 m/hr faster

5. a



b (i) 15 km/hr (ii) 20 km/hr

Scientific Notation

A. These numbers are given as standard index form. Write them as ordinary numbers.

1). 1.4×10^2	2). 2×10^3	3). 6.3×10^1	4). 4.52×10^2
5). 7×10^4	6). 5.6×10^4	7). 4.56×10^4	8). 8.3×10^1
9). 3.5×10^0	10). 4.76×10^6	11). 2×10^5	12). 7.02×10^3
13). 6×10^1	14). 2.1×10^2	15). 4.63×10^1	16). 6.1×10^5
17). 9×10^0	18). 7.8×10^4	19). 1.3×10^2	20). 9.7×10^0
21). 4.571×10^4	22). 6.78×10^2	23). 1.8×10^5	24). 3.67×10^8
25). 6.82×10^1	26). 4.01×10^3	27). 3.55×10^1	28). 3.91×10^5

Write these numbers in standard index form.

1). 470	2). 5000	3). 60	4). 3600
5). 972	6). 15	7). 6.8	8). 890000
9). 365	10). 620000	11). 23	12). 620
13). 5100	14). 8000000	15). 560000	16). 8
17). 6300	18). 93	19). 4.93	20). 12400
21). 320000	22). 900000	23). 4562	24). 572
25). 23.5	26). 93400	27). 207	28). 721000

Solutions

1). 140 2). 2000 3). 63 4). 452 5). 70000 6). 56000
7). 45600 8). 83 9). 3.5 10). 4760000 11). 200000 12). 7020
13). 60 14). 210 15). 46.3 16). 610000 17). 9 18). 78000
19). 130 20). 9.7 21). 45710 22).678 23). 180000 24). 367000000
25). 68.2 26). 4010 27). 35.5 28). 391000

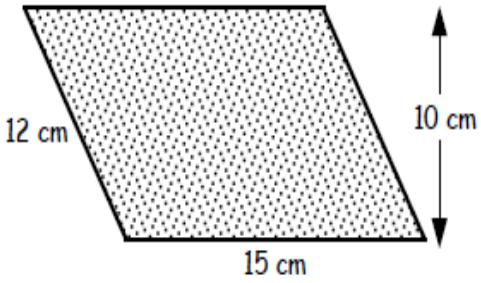
1). 4.7×10^2 2). 5×10^3 3). 6×10^1 4). 3.6×10^3 5). 9.72×10^2
6). 1.5×10^1 7). 6.8×10^0 8). 8.9×10^5 9). 3.65×10^2 10). 6.2×10^5
11). 2.3×10^1 12). 6.2×10^2 13). 5.1×10^3 14). 8×10^6 15). 5.6×10^5
16). 8×10^0 17). 6.3×10^3 18). 9.3×10^1 19). 4.93×10^0 20). 1.24×10^4
21). 3.2×10^5 22). 9×10^5 23). 4.562×10^3 24). 5.72×10^2 25). 2.35×10^1
26). 9.34×10^4 27). 2.07×10^2 28). 7.21×10^6

Area Quadrilaterals

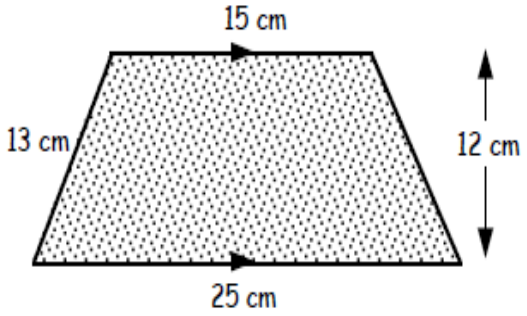
1. For each shape below :-

(i) name the shape (ii) state the formula used to find its area (iii) find the area.

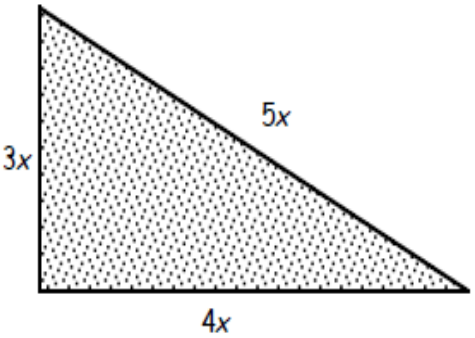
a



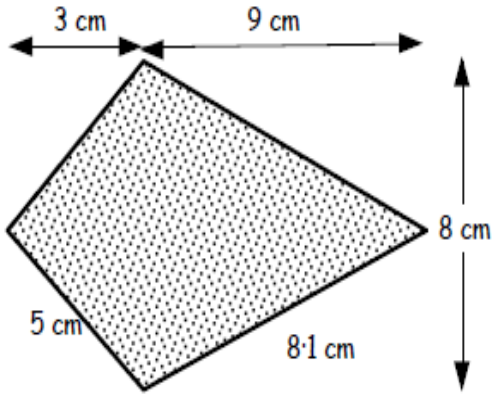
b



c



d



Solutions

1. a (i) parallelogram
   (ii) $A = B \times H$ (iii) 150 cm²
   b (i) trapezium
   (ii) $A = {}^1/_2 h(a + b)$ (iii) 240 cm²

   c (i) triangle
   (ii) $A = {}^1/_2 b \times h$ (iii) $6x^2$
   d (i) kite
   (ii) $A = {}^1/_2 D \times d$ (iii) 48 cm²
2. a 54 cm b 63 cm c $12x$ d 26·2 cm
3. a 84 cm² b 53·5 cm²

Fractions

Question 1

Find:

(a) $\frac{2}{5}+\frac{1}{5}$ (b) $\frac{4}{5}+\frac{2}{3}$ (c) $\frac{8}{9}-\frac{2}{3}$ (d) $\frac{4}{5}-\frac{3}{8}$

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

Question 2

Find:

(a) $\frac{4}{9}\times\frac{7}{8}$ (b) $\frac{2}{3}\times\frac{9}{16}$ (c) $2\frac{1}{3}\times1\frac{1}{5}$ (d) $5\frac{5}{6}\times1\frac{3}{7}$

(e) $\frac{5}{6}\div\frac{2}{3}$ (f) $\frac{7}{9}\div\frac{2}{3}$ (g) $\frac{15}{7}\div\frac{5}{14}$ (h) $3\frac{5}{9}\div2\frac{2}{3}$

Solutions

Question 1

(a) $\frac{3}{5}$ (b) $\frac{22}{15}$ or $1\frac{7}{15}$ (c) $\frac{2}{9}$ (d) $\frac{17}{40}$

(e) $\frac{131}{20}$ or $6\frac{11}{20}$ (f) $\frac{61}{35}$ or $1\frac{26}{35}$ (g) $\frac{31}{15}$ or $2\frac{1}{15}$ (h) $\frac{31}{12}$ or $2\frac{7}{12}$

Question 2

(a) $\frac{7}{18}$ (b) $\frac{3}{8}$ (c) $\frac{14}{5}$ or $2\frac{4}{5}$ (d) $\frac{25}{3}$ or $8\frac{1}{3}$

(e) $\frac{5}{4}$ or $1\frac{1}{4}$ (f) $\frac{7}{6}$ or $1\frac{1}{6}$ (g) 6 (h) $\frac{4}{3}$ or $1\frac{1}{3}$

Equations/Inequations

Question 1

Multiply out the brackets:

(a) $2(2g + 3)$	(b) $3(4a + 1)$	(c) $5(1 + 2d)$	(d) $2(3 - 4k)$
(e) $6(6h - 1)$	(f) $10(3 - 7n)$	(g) $4(2a + 3y)$	(h) $5(3t + x)$
(i) $2(4b - 3c)$	(j) $8(10k - 3p)$	(k) $7(11n - 9x)$	(l) $6(3ab - d)$
(m) $x(y + 5)$	(n) $a(p + 8)$	(o) $w(t - 1)$	(p) $g(g - 2)$
(q) $a(n + 9)$	(r) $w(m - a)$	(s) $e(f - 10)$	(t) $x(2 + x)$
(u) $a(2n + g)$	(v) $x(4y + 3u)$	(w) $6a(2 - 4a)$	(x) $3u(10u - w)$

Question 2

Solve each of the following equations:

(a) $2(x + 1) = 10$	(b) $3(2x + 8) = 30$	(c) $5(5x - 1) = 20$
(d) $4(4y + 1) = 36$	(e) $9(2y - 10) = 0$	(f) $7(5y - 2) = 56$
(g) $3(k + 2) + 6 = 21$	(h) $4(2w + 1) - 3 = 17$	(i) $3(3p + 3) + 3p = -3$
(j) $5(q + 3) + 2(2q - 5) = 23$	(k) $5(3d + 2) + 3(1 - 2d) = 13$	

Question 3

Solve each of the following equations:

(a) $\frac{1}{2}x + 3 = 9$	(b) $\frac{1}{4}x - 2 = 1$	(c) $\frac{1}{8}x + 5 = 8$
(d) $\frac{2}{3}x - 1 = 3$	(e) $\frac{3}{5}x + 11 = 0$	(f) $30 - \frac{3}{8}x = 21$

Solutions

Question 1

(a) $4g + 6$ (b) $12a + 3$ (c) $5 + 10d$ (d) $6 - 8k$

(e) $36h - 6$ (f) $30 - 70n$ (g) $8a + 12y$ (h) $15t + 5x$

(i) $8b - 6c$ (j) $80k - 24p$ (k) $77n - 63x$ (l) $18ab - 6d$

(m) $xy + 5x$ (n) $ap + 8a$ (o) $wt - w$ (p) $g^2 - 2g$

(q) $an + 9a$ (r) $wm - wa$ (s) $ef - 10e$ (t) $2x + x^2$

(u) $2an + ag$ (v) $4xy + 3ux$ (w) $12a - 24a^2$ (x) $30u^2 - 3uw$

Question 2

(a) $x = 4$ (b) $x = 1$ (c) $x = 1$ (d) $y = 2$

(e) $y = 5$ (f) $y = 2$ (g) $k = 3$ (h) $w = 2$

(i) $p = -1$ (j) $q = 2$ (k) $d = 0$

Question 3

(a) $x = 12$ (b) $x = 12$ (c) $x = 24$ (d) $x = 6$

(e) $x = -\frac{55}{3}$ (f) $x = 24$

Equations/Inequations

Question 4

Factorise fully:

(a) $4a + ac$ (b) $6v - gv$ (c) $xy + xz$ (d) $p^2 + 9p$

(e) $3g - g^2$ (f) $n^2 - 4n$ (g) $7xr + 7xs$ (h) $3jk - 6jh$

(i) $12vw - 12w$ (j) $3d^2 + 8d$ (k) $9g^2 - 15ge$ (l) $2n^2 - n$

(m) $4a + 14a^2$ (n) $p - 2p^2$ (o) $3c^2 - 12dc$ (p) $16ab + 24b^2$

Solutions

Question 4

(a) $a(4 + c)$	(b) $v(6 - g)$	(c) $x(y + z)$	(d) $p(p + 9)$
(e) $g(3 - g)$	(f) $n(n - 4)$	(g) $7x(r + s)$	(h) $3j(k - 2h)$
(i) $12w(v - 1)$	(j) $d(3d + 8)$	(k) $3g(3g - 5e)$	(l) $n(2n - 1)$
(m) $2a(2+ 7a)$	(n) $p(1 - 2p)$	(o) $3c(c - 4d)$	(p) $8b(2a + 3b)$

Equations/Inequations

1. Solve these inequalities, leaving your answers in the form $x > 3$, etc. :-

(a) $x + 3 > 5$ (b) $x + 6 < 13$ (c) $x - 7 \leq 10$

(d) $x + 4 \geq 17$ (e) $x - 3 \leq 3$ (f) $x - 8 \geq 0$

2. Solve each inequality, leaving your answers in the form $x \leq 5$, etc. :-

(a) $4x < 20$ (b) $5x > 30$ (c) $3x < 21$

(d) $8x \geq 48$ (e) $9x \leq 45$ (f) $10x > 120$

3. Solving the following inequalities :-

(a) $5x + 1 < 31$ (b) $3x + 2 > 14$ (c) $6x - 4 < 14$

(d) $2x + 5 \geq 19$ (e) $10x - 3 \leq 67$ (f) $8x - 11 > 61$

(g) $6x + 6 \leq 6$ (h) $4x - 5 < 15$ (i) $9x - 1 > 53$

(j) $8x - 16 < 0$ (k) $10x - 10 \geq 10$ (l) $2x + 7 \leq 16$

(m) $2(x + 3) < 14$ (n) $3(x + 1) > 33$ (o) $4(x - 5) \geq 40$

(p) $3(2x + 1) \leq 39$ (q) $2(5x - 1) > 8$ (r) $2(4x + 5) \leq 10$

Equations/Inequations

Ch 43 Ex 6 (Page 177)

1. a $x > 2$ b $x < 7$ c $x \leq 17$
   d $x \geq 13$ e $x \leq 6$ f $x \geq 8$
2. a $x < 5$ b $x > 6$ c $x < 7$
   d $x \geq 6$ e $x \leq 5$ f $x > 12$
3. a $x < 6$ b $x > 4$ c $x < 3$ d $x \geq 7$
   e $x \leq 7$ f $x > 9$ g $x \leq 0$ h $x < 5$
   i $x > 6$ j $x < 2$ k $x \geq 2$ l $x \leq 4{\cdot}5$
   m $x < 7$ n $x > 10$ o $x \geq 15$ p $x \leq 6$
   q $x > 1$ r $x \leq 0$

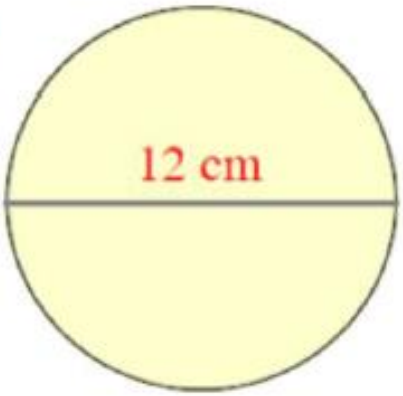
Circle

Circles (Calculator)

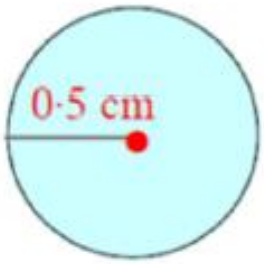
Question 1

Calculate the circumference of the following circles:

(a)



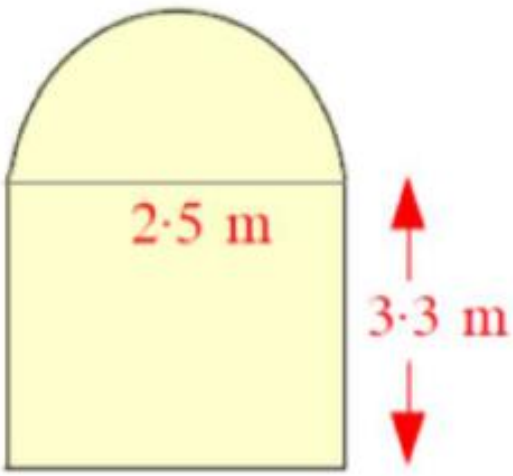
(b)



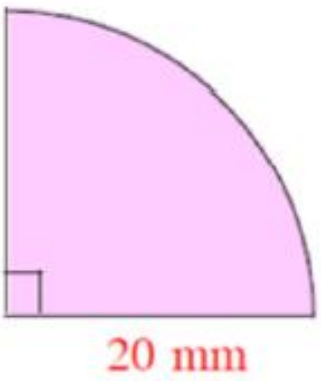
Question 2

Calculate the perimeter of each shape:

(a)



(b)

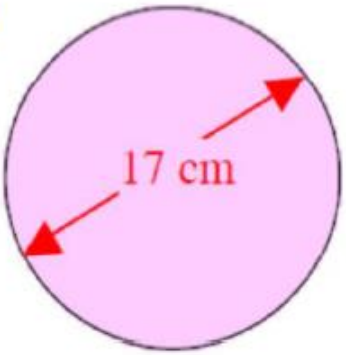


Circle

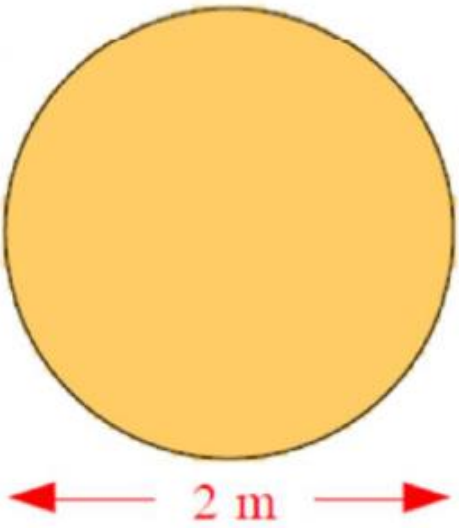
Question 3

Find the area of each circle below:

(a)

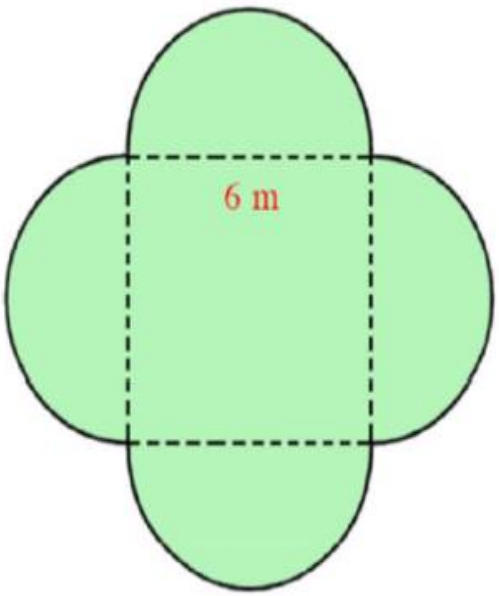


(b)



Question 4

A garden is designed as shown using a square of side 6 metres and four semi-circles.



Solutions

Circles

Question 1

(a)37.68 cm

(b) 3.14 cm

Question 2

(a) 11.06 m

(b) 71.4 mm

Question 3

(a) 226.87 cm^2

(b) 3.14 m^2

Question 4

92.52 m^2

Percentages

2. Find the following without a calculator :-

(a) 10% of £25 (b) 70% of £60 (c) 20% of £3·50

(d) 80% of 40p (e) 25% of £1260 (f) $33\frac{1}{3}$% of £36

(g) 75% of £4·80 (h) 1% of £120 (i) 60% of £12000

(j) 50% of £$\frac{1}{2}$ million (k) $66\frac{2}{3}$% of £18·60 (l) 10% of 70p

5. Write each of the following as a fraction **AND** as a decimal :-

(a) 28% (b) 35% (c) 61% (d) 23% (e) 58%

(f) 4% (g) 12% (h) 7% (i) 12·5% (j) 2·5%

Solutions

2. a. £2·50 b. £42 c. 70p d. 32p
   e. £315 f. £12 g. £3·60 h. £1·20
   i. £7200 j. £250000
   k. £12·40 l. 7p m. £220 n. 9p
   o. £1·25 p. £16 q. £1·50 r. 5p

5. a. $^{28}/_{100} = 0{\cdot}28$ b. $^{35}/_{100} = 0{\cdot}35$
   c. $^{61}/_{100} = 0{\cdot}61$ d. $^{23}/_{100} = 0{\cdot}23$
   e. $^{58}/_{100} = 0{\cdot}58$ f. $^{4}/_{100} = 0{\cdot}04$
   g. $^{12}/_{100} = 0{\cdot}12$ h. $^{7}/_{100} = 0{\cdot}07$
   i. $^{12{\cdot}5}/_{100} = 0{\cdot}125$ j. $^{2{\cdot}5}/_{100} = 0{\cdot}025$