KS3 Mathematics
Homework Pack D:
Level 6

Stafford Burndred

ePacks

St Josephs Catholic High School

1 Fractions – 1
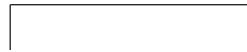
You may use a calculator for these questions:

1    $3\frac{4}{5} + 1\frac{2}{3}$ 1..................... ☐

2    $6\frac{7}{8} - 1\frac{2}{5}$ 2..................... ☐

3    $4\frac{1}{3} - 2\frac{5}{8}$ 3..................... ☐

4    $4\frac{2}{3} \div 1\frac{2}{5}$ 4..................... ☐

5    $3\frac{3}{4} \div 1\frac{1}{2}$ 5..................... ☐

6    $2\frac{1}{3} \times 1\frac{3}{4}$ 6..................... ☐

7    $1\frac{1}{3} \times 1\frac{5}{8}$ 7..................... ☐

8    $2\frac{5}{16} + 1\frac{3}{7}$ 8..................... ☐

9   Find $\frac{3}{4}$ of 18   9..................... ☐

10   Find $\frac{2}{5}$ of 21   10.................... ☐

11   Find $\frac{3}{8}$ of 37   11.................... ☐

12   Find $\frac{3}{16}$ of 18   12.................... ☐

13   Find $\frac{3}{5}$ of 320   13.................... ☐

14   Find $\frac{3}{7}$ of 168   14.................... ☐

15   Write $\frac{72}{84}$ as a fraction in its lowest terms   15.................... ☐

16   Write $\frac{18}{108}$ as a fraction in its lowest terms   16.................... ☐

17   Write $\frac{60}{88}$ as a fraction in its lowest terms   17.................... ☐

18   Write $\frac{375}{775}$ as a fraction in its lowest terms   18.................... ☐

19   Write $\frac{64}{256}$ as a fraction in its lowest terms   19.................... ☐

20   Write $\frac{96}{392}$ as a fraction in its lowest terms   20.................... ☐

Minimum mark	16	13	10	7	
Circle grade	A	B	C	D	E

_____
20

2 Fractions – 2
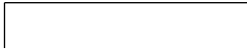
1   8 out of 40 men wear glasses.
    Write this as a fraction in its lowest terms.   1....................... ☐

2   28 out of 32 pupils passed a test.
    Write this as a fraction in its lowest terms.   2....................... ☐

3   8 pupils out of a class of 24 were boys.
    Write this as a fraction in its lowest terms.   3....................... ☐

4   15 out of 25 pupils owned a computer.
    Write this as a fraction in its lowest terms.   4....................... ☐

5   A golf club had 600 members. 420 were men.
    100 were woman, 60 were boys, the rest were girls.

    a   What fraction were men?
        Give your answer in its lowest terms.   5a .... ☐

    b   What fraction were women?
        Give your answer in its lowest terms.   5b.................... ☐

    c   What fraction were boys?
        Give your answer in its lowest terms.   5c.................... ☐

    d   What fraction were girls?
        Give your answer in its lowest terms.   5d .... ☐

6   There were 800 people in a cinema. $\frac{1}{4}$ were men,
    $\frac{2}{5}$ were women, $\frac{1}{8}$ were girls and the rest were boys.

    a   How many men were there in the cinema?   6a .... ☐

    b   How many women were there in the cinema?   6b.................... ☐

    c   How many girls were there in the cinema?   6c.................... ☐

    d   What fraction were boys?   6d .... ☐

7   A shop had a sale in which all goods were $\frac{1}{4}$ off
    the normal price. How much money would be saved
    by buying the following goods?
    The normal prices are shown.

    a   Trousers   £18   7a .... ☐

    b   Jacket   £41   7b.................... ☐

    c   Tie   £3.60   7c.................... ☐

    d   Scarf   £5.20   7d .... ☐

Minimum mark	13	11	8	5	
Circle grade	A	B	C	D	E

16

3 Percentages – 1
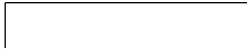
Write the following as percentages:

1	3 out of 20	1...................... ☐
2	7 out of 40	2...................... ☐
3	7 out of 16	3...................... ☐
4	4 out of 32	4...................... ☐
5	27 out of 40	5...................... ☐
6	31 out of 80	6...................... ☐
7	16 out of 40	7...................... ☐
8	15 out of 75	8...................... ☐
9	29 out of 80	9...................... ☐
10	18 out of 60	10..................... ☐
11	38 out of 400	11..................... ☐
12	260 out of 800	12..................... ☐

13 Mrs Smith earned £240 per week. Calculate her
    percentage increase if she received a rise of:

a	£9.60	13a .... ☐
b	£7.68	13b................... ☐
c	£18.24	13c................... ☐
d	£17.28	13d .... ☐

14 This table gives the normal price and sale price of
    some cars. Calculate the percentage reduction in price.

	Normal price	Sale price	
a	£8000	£7200	14a .... ☐
b	£12 600	£10 710	14b................... ☐
c	£17 500	£11 375	14c................... ☐
d	£25 000	£20 750	14d .... ☐

Minimum mark	16	13	10	7	
Circle grade	A	B	C	D	E

20

4 Percentages – 2

1   The following list gives the marks obtained by some
    pupils in a maths test. The marks are out of 160.
    Express each mark as a percentage:

    a   John   120   1a .... ☐

    b   Sally   100   1b.................... ☐

    c   Mandy   96   1c.................... ☐

    d   Tom   36   1d .... ☐

2   Write the following as percentages:

    a   6 men out of 40 are bald   2a .... ☐

    b   3 women out of 60 wear a hat   2b.................... ☐

    c   36 pupils out of 40 passed a test   2c.................... ☐

    d   28 pupils out of 80 were late   2d .... ☐

3   This table shows the original price and sale price of
    goods in a shop. Calculate the percentage reduction.

Item	Original price	Sale price
Gloves	£3.20	£2.56
Socks	£1.90	£1.14
Shirt	£8.60	£5.59
Blouse	£10.80	£8.10

    a   3a .... ☐

    b   3b.................... ☐

    c   3c.................... ☐

    d   3d .... ☐

Minimum mark	10	8	6	4	
Circle grade	A	B	C	D	E

12

5 Fractions, decimals and percentages – 1

1   Write the following decimals as percentages:

a   0.37   1a .... ☐

b   0.86   1b.................... ☐

c   0.73   1c.................... ☐

d   0.66   1d .... ☐

e   0.4   1e.................... ☐

f   0.05   1f .... ☐

g   0.038   1g .... ☐

h   0.007   1h.................... ☐

2   Convert the following percentages to decimals:

a   27%   2a .... ☐

b   32%   2b.................... ☐

c   81%   2c.................... ☐

d   60%   2d .... ☐

e   3%   2e.................... ☐

f   6.4%   2f .... ☐

g   28.2%   2g .... ☐

h   0.3%   2h.................... ☐

Minimum mark	13	11	8	5		
Circle grade	A	B	C	D	E	16

6 Fractions, decimals and percentages – 2

1   Convert the following percentages to fractions.
     Give your answer as a fraction in its lowest terms.

    a   40%   1a ....☐

    b   65%   1b....................☐

    c   32%   1c....................☐

    d   24%   1d ....☐

    e   6%   1e....................☐

    f   16%   1f ....☐

    g   6.4%   1g ....☐

    h   0.7%   1h....................☐

2   Write the following decimals as fractions.
     Give your answer as a fraction in its lowest terms.

    a   0.38   2a ....☐

    b   0.65   2b....................☐

    c   0.48   2c....................☐

    d   0.9   2d ....☐

    e   0.007   2e....................☐

    f   0.385   2f ....☐

    g   0.002   2g ....☐

    h   0.036   2h....................☐

Minimum mark	13	11	8	5	
Circle grade	A	B	C	D	E

16

7 Fractions, decimals and percentages – 3

1 Convert the following fractions to decimals:

a $\frac{2}{5}$

1a .... ☐

b $\frac{7}{10}$

1b................... ☐

c $\frac{3}{8}$

1c................... ☐

d $\frac{11}{16}$

1d .... ☐

e $\frac{17}{20}$

1e................... ☐

f $\frac{27}{40}$

1f .... ☐

g $\frac{19}{80}$

1g .... ☐

h $\frac{3}{100}$

1h................... ☐

2 Convert the following fractions to percentages:

a $\frac{3}{5}$

2a .... ☐

b $\frac{9}{10}$

2b................... ☐

c $\frac{7}{8}$

2c................... ☐

d $\frac{13}{20}$

2d .... ☐

e $\frac{19}{40}$

2e................... ☐

f $\frac{61}{80}$

2f .... ☐

g $\frac{23}{40}$

2g .... ☐

h $\frac{51}{80}$

2h................... ☐

Minimum mark	13	11	8	5	
Circle grade	A	B	C	D	E

16

8 Fractions, decimals and percentages – 4

Complete this table. Write the missing numbers
in the table **and** on the answer line.

	Fraction		Decimal		Percentage
1	$\frac{1}{2}$	=		=	
2		=	0.25	=	
3		=		=	75%
4	$\frac{1}{3}$	=		=	
5		=	0.667	=	
6		=		=	12.5%
7	$\frac{3}{8}$	=		=	
8		=	0.625	=	
9		=		=	87.5%
10	$\frac{1}{10}$	=		=	
11		=	0.01	=	
12	$\frac{1}{5}$	=		=	

1   Decimal .... ☐
    Percentage .... ☐
2   Fraction .... ☐
    Percentage .... ☐
3   Fraction .... ☐
    Decimal .... ☐
4   Decimal .... ☐
    Percentage .... ☐
5   Fraction .... ☐
    Percentage .... ☐
6   Fraction .... ☐
    Decimal .... ☐
7   Decimal .... ☐
    Percentage .... ☐
8   Fraction .... ☐
    Percentage .... ☐
9   Fraction .... ☐
    Decimal .... ☐
10 Decimal .... ☐
    Percentage .... ☐
11 Fraction .... ☐
    Percentage .... ☐
12 Decimal .... ☐
    Percentage .... ☐

Minimum mark	19	16	12	8		
Circle grade	A	B	C	D	E	

24

9 Ratio – 1
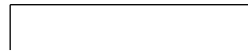
This is a recipe for vegetable soup for 4 people:

Water   1200 ml

Carrots   200 g

Onions   160 g

Salt   6 g

1   How much of each ingredient should be used for 2 people?

        a   Water   ....ml ☐

        b   Carrots   ....g ☐

        c   Onions   ....g ☐

        d   Salt   ....g ☐

2   How much of each ingredient should be used for 12 people?

        a   Water   ....ml ☐

        b   Carrots   ....g ☐

        c   Onions   ....g ☐

        d   Salt   ....g ☐

3   How much of each ingredient should be used for 10 people?

        a   Water   ....ml ☐

        b   Carrots   ....g ☐

        c   Onions   ....g ☐

        d   Salt   ....g ☐

4   How much of each ingredient should be used for 6 people?

        a   Water   ....ml ☐

        b   Carrots   ....g ☐

        c   Onions   ....g ☐

        d   Salt   ....g ☐

Minimum mark	13	11	8	5	
Circle grade	A	B	C	D	E

16

10 Ratio – 2
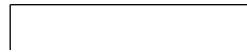
Simplify these ratios:

1   5:20

2   6:8

3   27:78

4   60:84

5   200:300:450

6   6:12:24

1.........:.......... ☐

2.........:.......... ☐

3.........:.......... ☐

4.........:.......... ☐

5......:......:...... ☐

6......:......:...... ☐

Express the following as ratios in their simplest form:

7   A school has 300 boys and 250 girls

8   A theatre has 250 men and 300 women

9   A firm employs 60 men and 72 women

10   A plane has 320 passengers and 16 crew

11   A golf course has 500 men and 350 women

12   A factory employs 1000 men and 1500 women

7.........:.......... ☐

8.........:.......... ☐

9.........:.......... ☐

10.........:.......... ☐

11.........:.......... ☐

12.........:.......... ☐

Write the following in the ratio 1:n

13 6:18

14 28:70

15 16:1.6

16 0.6:4.2

13......1 :.......... ☐

14......1 :.......... ☐

15......1 :.......... ☐

16......1 :.......... ☐

Write the following in the ratio n:1

17 75:15

18 32:64

19 12:30

20 28:40

17.........: 1.... ☐

18.........: 1.... ☐

19.........: 1.... ☐

20.........: 1.... ☐

Minimum mark	16	13	10	7	
Circle grade	A	B	C	D	E

_____

20

11 Ratio – 3

1   £6000 is divided between Adam, Ben and
    Chris in the ratio 1:3:4.

    a   How much does Adam receive?   1a £ .... ☐

    b   How much does Ben receive?   1b £ .... ☐

    c   How much does Chris receive?   1c £.................. ☐

2   In a will £7500 is divided between Anna, Brenda
    and Carol in the ratio 4:5:6.

    a   How much does Anna receive?   2a £ .... ☐

    b   How much does Brenda receive?   2b £ .... ☐

    c   How much does Carol receive?   2c £.................. ☐

3   Sweets were divided between Danny, Louise and
    Steve in the ratio 3:4:2. Louise received 20 sweets.

    a   How many sweets did Danny receive?   3a .... ☐

    b   How many sweets did Steve receive?   3b.................... ☐

    c   What was the total number of sweets?   3c.................... ☐

4   A sum of money was divided between Sara, Jenny
    and Carla in the ratio 3:5:8. Jenny received £10
    more than Sara.

    a   How much did Sara receive?   4a £ .... ☐

    b   How much did Carla receive?   4b £ .... ☐

    c   What was the total amount of money?   4c £.................. ☐

Minimum mark	10	8	6	4	
Circle grade	A	B	C	D	E

12

12 Scale
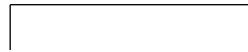
Express the following scales in the ratio 1:n

1   The scale of a map is 1 cm represents 1 m   1 1: .... ☐

2   The scale of a map is 1 cm represents 1 km   2 1: .... ☐

3   The scale of a map is 1 cm represents 5 km   3 1: .... ☐

4   The scale of a map is 4 cm represents 5 km   4 1: .... ☐

5   The scale of a map is 2 cm represents 5 km   5 1: .... ☐

6   The scale of a map is 2 cm represents 1 km   6 1: .... ☐

The scale of the map is 1:50 000

7   The distance shown are the distances on the map.
     What are the actual distances on the ground?
     Give your answers in kilometres:

     a   8 cm   7a...............km ☐

     b   22 cm   7b...............km ☐

     c   15 cm   7c ....km ☐

     d   35 cm   7d...............km ☐

     e   3.5 cm   7e................km ☐

8   The distances shown are the actual distances on
     the ground. What are the distances on the map?
     Give your answer in centimetres:

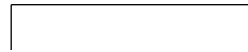   a   10 km   8a...............cm ☐

     b   32 km   8b...............cm ☐

     c   20 km   8c ....cm ☐

     d   27.5 km   8d...............cm ☐

     e   0.5 km   8e ....cm ☐

Minimum mark	13	11	8	5	
Circle grade	A	B	C	D	E

16

13 Number patterns

For questions 1 to 4:

a   Find the rule to produce the nth term.

b   Find the 12th term.

c   Find the 27th term.

1   7, 10, 13, 16, 19

2   5, 9, 13, 17, 21

3   1, 8, 15, 22, 29

4   10, 6, 2, –2, –6

1a .... ☐
1b.................... ☐
1c.................... ☐

2a .... ☐
2b.................... ☐
2c.................... ☐

3a .... ☐
3b.................... ☐
3c.................... ☐

4a .... ☐
4b.................... ☐
4c.................... ☐

5   Here is a pattern made out of matchsticks:

a   Draw the next pattern.

b   What is the rule to find the number of
     matchsticks in the nth term?

c   Use your rule to find the number of
     matchsticks in the 20th term.

d   Which term has 121 matchsticks?

5a .... ☐

5b.................... ☐

5c.................... ☐

5d .... ☐

Minimum mark	13	11	8	5	
Circle grade	A	B	C	D	E

16

Name:..

14 Rules: Equations

Solve the following equations:

1   $x + 3 = 10$ 2 $x + 7 = 5$

3   $x - 2 = 7$ 4 $x - 8 = 4$

5   $6y = 30$ 6 $3a = 18$

7   $-4c = 20$ 8 $\dfrac{d}{4} = 8$

9   $\dfrac{y}{3} = 6$ 10 $-3a = -18$

11   $6a - 3 = 21$ 12 $8a + 4 = 3a + 19$

13   $2a + 10 = 5a + 1$ 14 $\dfrac{x}{6} - 1 = 17$

15   $\dfrac{x}{5} + 2 = 12$ 16 $\dfrac{4x}{3} = 8$

1...................... ☐
2...................... ☐
3...................... ☐
4...................... ☐
5...................... ☐
6...................... ☐
7...................... ☐
8...................... ☐
9...................... ☐
10.................... ☐
11.................... ☐
12.................... ☐
13.................... ☐
14.................... ☐
15.................... ☐
16.................... ☐

Minimum mark	13	11	8	5	
Circle grade	A	B	C	D	E

16

15 Writing equations
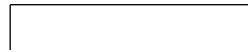
1   Mr Wright buys C cakes at 15p each. He pays £2.55.

    a   Write an equation to show this.   1a ....☐

    b   Solve the equation.   1b....................☐

2   Mrs Jones bought B books at £6 each. She spent £138.

    a   Write an equation to show this.   2a ....☐

    b   Solve the equation.   2b....................☐

3   A number N is chosen. Four times the number
    minus 6 equals 14.

    a   Write an equation to show this.   3a ....☐

    b   Solve the equation.   3b....................☐

4   John has 2y sweets. Paul has 3y + 6 sweets.
    Altogether they have 41 sweets.

    a   Write an equation to show this.   4a ....☐

    b   How many sweets does Paul have?   4b....................☐

Minimum mark	7	5	4	2	
Circle grade	A	B	C	D	E

8

16 Trial and improvement – 1

Use 'trial and improvement' methods to solve the following. You must show all of your working.

1   Complete the table to find the value
    of x correct to one decimal place:

$$x^2 + 3x = 48$$

Guess x	$x^2 + 3x$	Too big	Too small
8	88	8 is too big	
4	28		4 is too small

1.......................

2   Complete the table to find the value
    of x correct to one decimal place:

$$x^3 - 3x = 930$$

Guess x	$x^3 - 3x$	Too big	Too small
8	488		8 is too small
12	1692	12 is too big	

2.......................

Minimum mark	7	5	4	2	
Circle grade	A	B	C	D	E

8

17 Trial and improvement – 2

In the following questions you must show all of your working.

1   Complete the table to find the value
     of x correct to two decimal places:

$$x^3 - x^2 = 310$$

Guess x	$x^3 - x^2$	Too big	Too small
7	294		7 is too small
8	448	8 is too big	

1.......................

2   Complete the table to find the values
     of x correct to two decimal places:

$$x^3 + 8x^2 = 251$$

Guess x	$x^3 + 8x^2$	Too big	Too small
5	325	5 is too big	
4	192		4 is too small

2.......................

Minimum mark	7	5	4	2	
Circle grade	A	B	C	D	E

8

18 Drawing lines and graphs

Which letters represent the following lines?
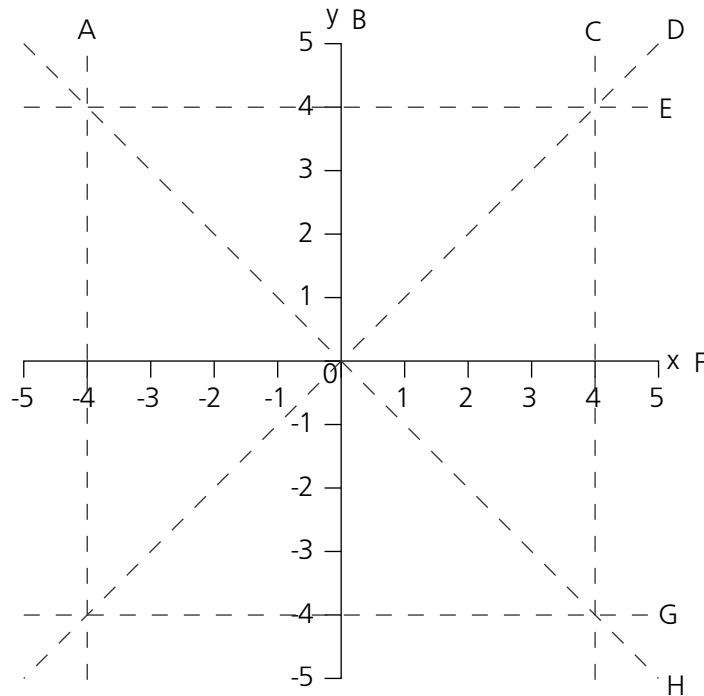
1	$x = 0$	.... ☐
2	$y = 0$	.... ☐
3	$y = 4$	.... ☐
4	$x = 4$	.... ☐
5	$y = -4$	.... ☐
6	$x = -4$	.... ☐
7	$y = x$	.... ☐
8	$y = -x$	.... ☐

x	y	
−3		☐
−2		☐
−1		☐
0		☐
1		☐
2		☐
3		☐

9   Complete the table of values on the right and draw the graph of $y = x^2 - 4$
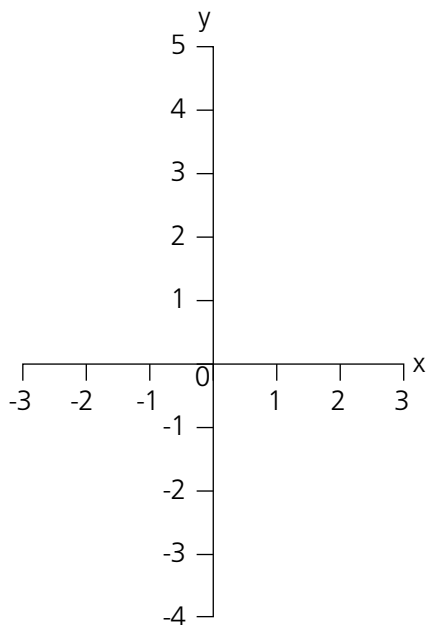
Graph ☐

Minimum mark	13	11	8	5		
Circle grade	A	B	C	D	E	

16

19 Intersecting and parallel lines

Find the missing angles in these diagrams:

1

2

3

4

5

6

7
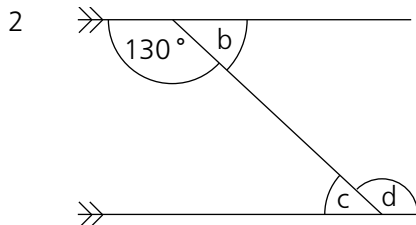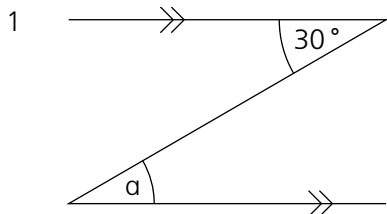
1a .... ☐

2b..................... ☐

2c .... ☐

2d .... ☐
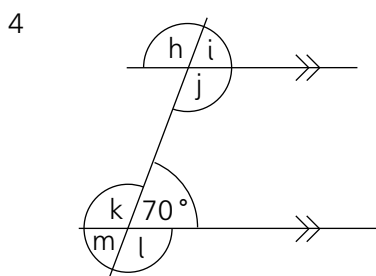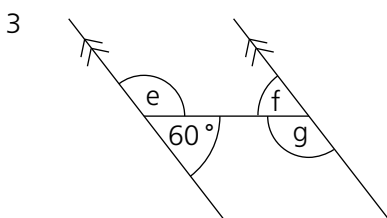
3e..................... ☐

3f .... ☐

3g .... ☐

4h..................... ☐

4i..................... ☐

4j..................... ☐

4k..................... ☐

4l..................... ☐

4m..................... ☐

5n..................... ☐

5o..................... ☐

5p..................... ☐

6q .... ☐

6r .... ☐

6s .... ☐

7t .... ☐
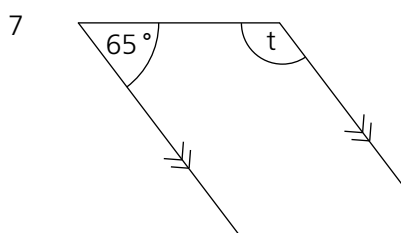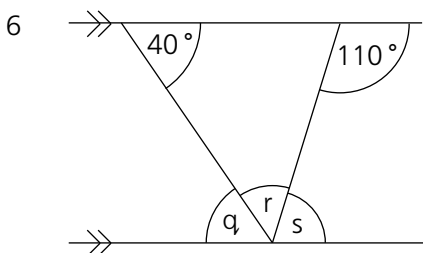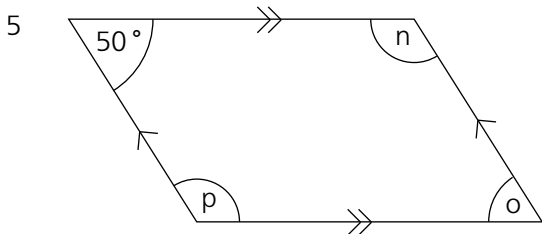
Minimum mark	16	13	10	7	
Circle grade	A	B	C	D	E

_____
20

20 Regular polygons
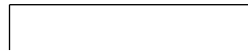
Calculate: a　The size of each exterior angle.
　　　　　b　The size of each interior angle.
　　　　　c　The sum of the interior angles.

1　A regular pentagon (5 sides)

1a ....　☐

1b....................　☐

1c....................　☐

2　A regular octagon (8 sides)

2a ....　☐

2b....................　☐

2c....................　☐

3　A regular 20 sides polygon

3a ....　☐

3b....................　☐

3c....................　☐

4　Each exterior angle of a regular n-sided polygon
is 10°. How many sides does the polygon have?

4......................　☐

5　Each exterior angle of a regular n-sided polygon
is 40°. How many sides does the polygon have?

5......................　☐

6　Each interior angle of a regular n-sided polygon
is 150°. How many sides does the polygon have?

6......................　☐

Minimum mark	10	8	6	4		
Circle grade	A	B	C	D	E	12

21 Bearings

N

x H

x A

x D

x R

C x

x L
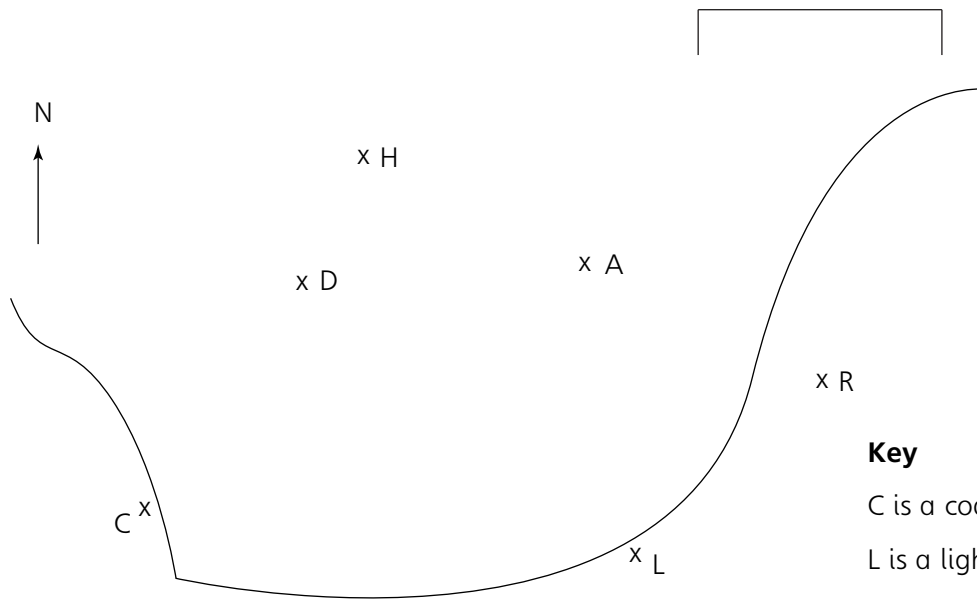
Key

C is a coastguard station

L is a lighthouse

R is a radio transmitter

The following are ships:

A = *Appleyard*

D = *Dragonfly*

H = *Hispanic*

Find the bearing of:

1	The *Hispanic* from the *Dragonfly*	1....................... ☐
2	The *Dragonfly* from the *Hispanic*	2....................... ☐
3	The *Appleyard* from the lighthouse	3....................... ☐
4	The *Dragonfly* from the coastguard station	4....................... ☐
5	The lighthouse from the coastguard station	5....................... ☐
6	The coastguard station from the radio transmitter	6....................... ☐
7	The *Hispanic* from the radio transmitter	7....................... ☐
8	The *Appleyard* from the *Hispanic*	8....................... ☐
9	The coastguard station from the *Hispanic*	9....................... ☐
10	The *Dragonfly* from the lighthouse	10..................... ☐
11	The radio transmitter from the *Dragonfly*	11..................... ☐
12	The lighthouse from the radio transmitter	12..................... ☐

Minimum mark	10	8	6	4	
Circle grade	A	B	C	D	E

_____

12

22 2-D representation of 3-D shapes

These are the nets of shapes. Name the shapes.

1
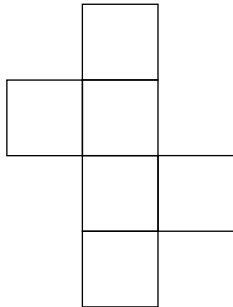
2
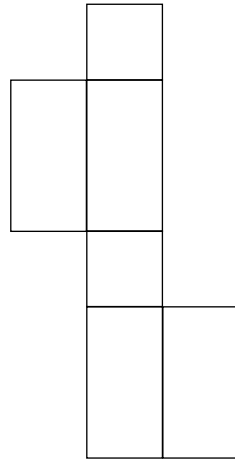
1 .... ☐

2 .... ☐

3

3 .... ☐

4
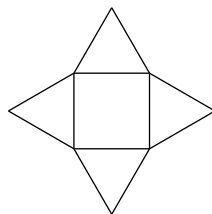
5

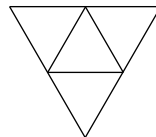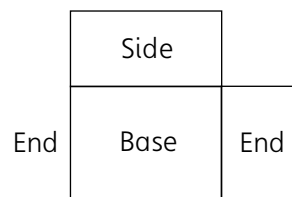4 .... ☐

5 .... ☐

6   Draw an accurate net of this cuboid.
     Part of the net has been drawn for you

1 cm

2 cm

1.5 cm

6
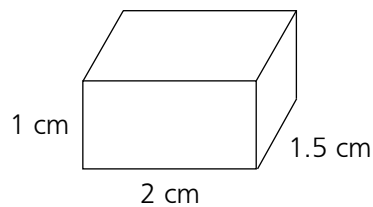
	Side	
End	Base	End
	Side	

Top

☐

Minimum mark	5	4	3	2	
Circle grade	A	B	C	D	E

6

23 Properties of quadrilaterals and triangles
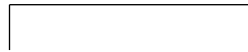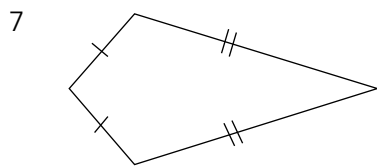
Name the quadrilateral described by the following statements:

1   Four equal sides, four equal angles   1...................... ☐

2   Four equal angles   2...................... ☐

3   Four equal sides   3...................... ☐

4   Two pairs of equal length sides
adjacent to each other   4...................... ☐

5   What is the special name for this triangle?   5...................... ☐

6
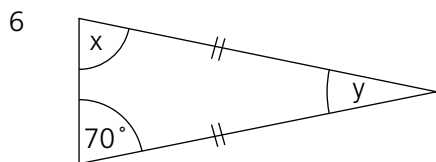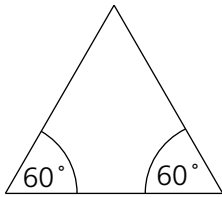
       a   What is the size of angle x?   6a .... ☐

       b   What is the size of angle y?   6b................... ☐

       c   What is the special name for this triangle?   6c................... ☐

What are the special names of these quadrilaterals?

7

8

7...................... ☐

8...................... ☐

9

10

9...................... ☐

10................... ☐

Minimum mark	10	8	6	4	
Circle grade	A	B	C	D	E

_____

12

KS3 Mathematics Homework Pack D: Level 6 Name:...
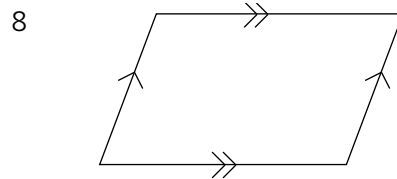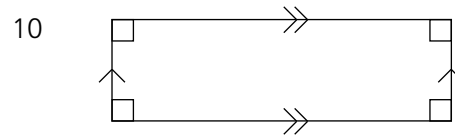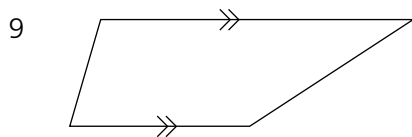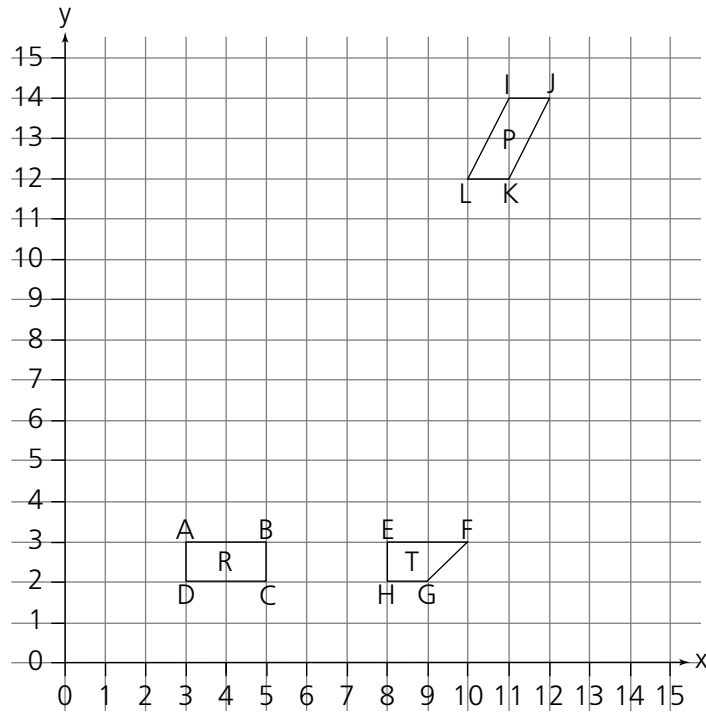
24 Enlargement

1   Enlarge R by a scale of 3. The centre of the enlargement is the point (1, 1).
    Label the new rectangle A′B′C′D′.

New co-ordinates

1A′ .... ☐

1B′ .... ☐

1C′ .... ☐

1D′ .... ☐

2   Enlarge T by a scale factor of 2. The centre of enlargement is the point (15, 0).
    Label the new rectangle E′F′G′H′.

2E′ .... ☐

2F′ .... ☐

2G′ .... ☐

2H′ .... ☐
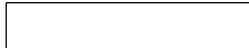
3   Enlarge P by a scale factor of 2. The centre of enlargement is the point (14, 15).
    Label the new parallelogram I′J′K′L′.

3I′ .... ☐
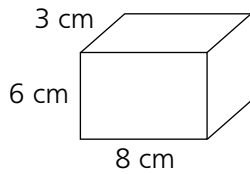
3J′ .... ☐

3K′ .... ☐

3L′ .... ☐

Minimum mark	10	8	6	4	
Circle grade	A	B	C	D	E

_____

12

25 Areas and volumes

1   a   Find the volume.   1a .... ☐

    b   Find the total surface area.   1b.................... ☐

    3 cm
    6 cm
    8 cm

2   Find the volume of this prism: 2...................... ☐

    2 cm
    3 cm
    2 cm
    2 cm
    7 cm   4 cm
               2 cm
    8 cm   3 cm
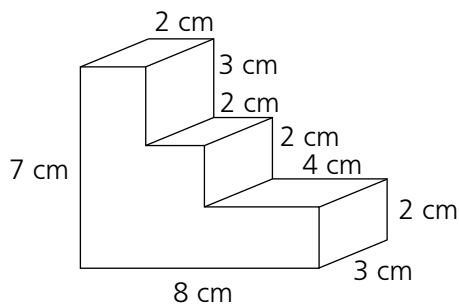
3   FInd the volume of this prism: 3...................... ☐

    7 cm   6 cm

    5 cm
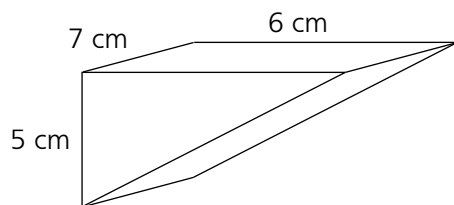
4   This is a diagram of a rectangular pond with a
    path all the way around. The path is 2 m wide.

    2 m
    18 m
    10 m
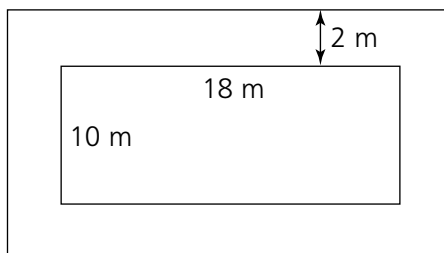
    a   What is the area of the path?   4a .... ☐

    b   The path is made of concrete 10 cm deep.
        What is the total volume of the concrete?   4b.................... ☐

Minimum mark	5	4	3	2	
Circle grade	A	B	C	D	E

6

26 Circumference and area of a circle

Find: a the circumference.
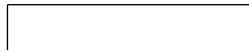   b the area of these circles.

Use π = 3.14

1   Circle radius 6 cm   1a .... ☐

                                                        1b.................... ☐

2   Circle radius 4.2 cm   2a .... ☐

                                                        2b.................... ☐

3   Circle diameter 14 cm   3a .... ☐

                                                           3b.................... ☐

4   Circle diameter 8.8 cm   4a .... ☐

                                                             4b.................... ☐

5   Find the diameter of a circle with a
      circumference of 56.52 cm.   5...................... ☐

6   Find the radius of a circle with a
      circumference of 125.6 cm   6...................... ☐

7   Calculate the volume of a cylinder
      radius 5 cm, length 4 cm   7...................... ☐

8   Calculate the volume of a cylinder
      radius 8 mm, height 2.4 cm   8...................... ☐

Minimum mark	10	8	6	4		
Circle grade	A	B	C	D	E	

12

27 Frequency tables and frequency graphs
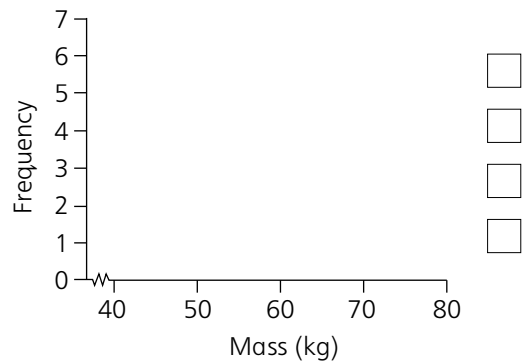
1   This data shows the mass (in kilograms) of 15 people:

   47   53   60   56   62
   65   56   46   53   73
   75   58   54   49   78

   a   Complete the frequency table
       on the right:

Mass in kilograms	Tally	Frequency
40 – under 50		
50 – under 60		
60 – under 70		
70 – under 80		

   b   Show this information in a frequency diagram:

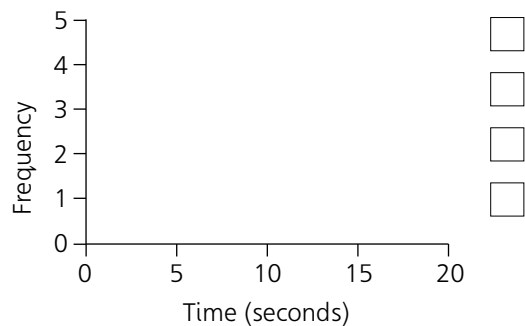2   This data shows the time (in seconds) that
    some girls took to thread a needle:

   16   3   10   8   12   10
   17   19   4   18   4   16

   a   Complete the frequency table
       on the right:

Time in seconds	Tally	Frequency
Under 5		
5 – under 10		
10 – under 15		
15 – under 20		

   b   Show this information in a frequency diagram:

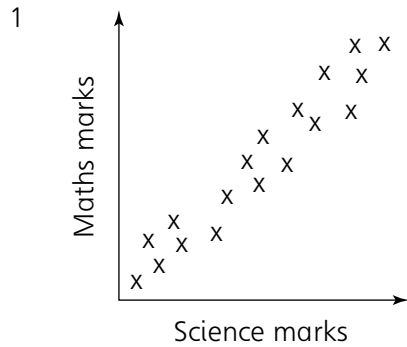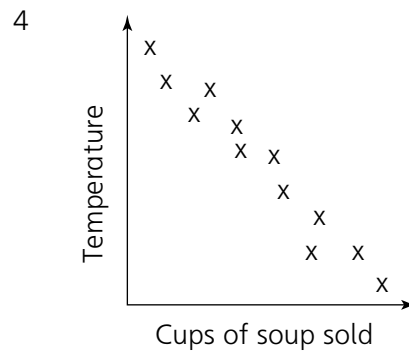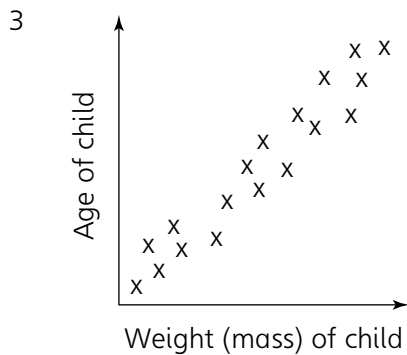| Minimum mark	13	11	8	5		_____
Circle grade	A	B	C	D	E	16

28 Scatter diagrams

Describe the type of corellation shown by these scatter diagrams. Choose from: positive corellation, negative corellation, no corellation.
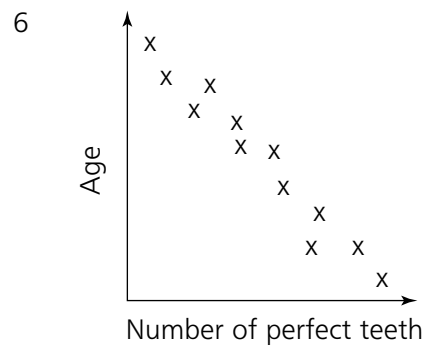
The corellation shown is:

1...................... ☐
2...................... ☐

1

Maths marks vs Science marks

2

Person's age vs Number of letters in a person's name

3...................... ☐
4...................... ☐

3

Age of child vs Weight (mass) of child

4

Temperature vs Cups of soup sold

5...................... ☐
6...................... ☐

5

Person's age vs Person's house number

6

Age vs Number of perfect teeth
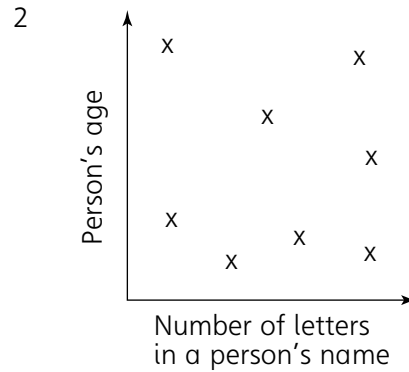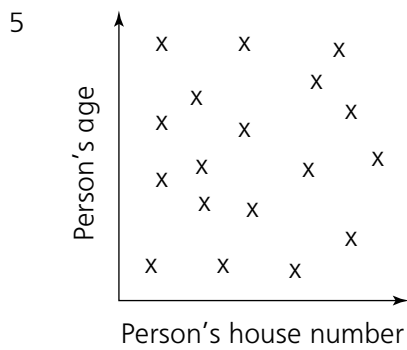
Minimum mark	5	4	3	2	
Circle grade	A	B	C	D	E

_____
6

29 Drawing pie charts
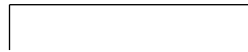
1   60 people were asked to name their favourite ice cream flavour.
    6 chose vanilla, 25 chose mint, 18 chose chocolate
    and 11 chose raspberry.
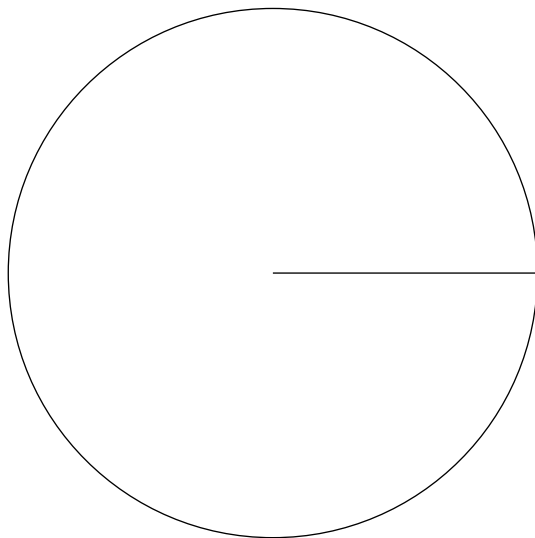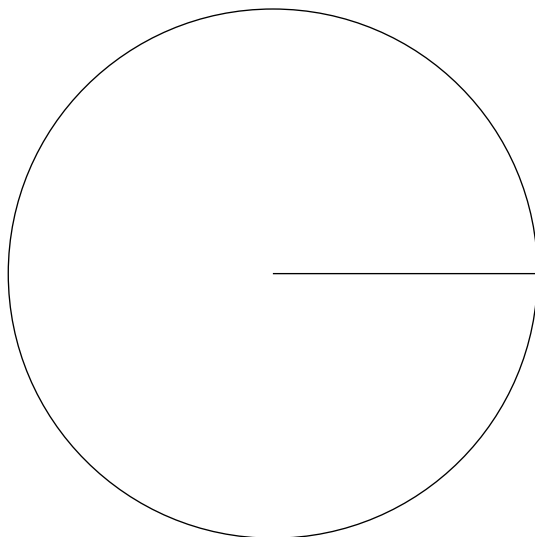   Show this information on the pie chart.
    Label the pie chart clearly.

Angle size

Vanilla .... ☐

Mint .... ☐

Chocolate .... ☐

Raspberry .... ☐

2   45 people were asked how many TV sets they owned.
    10 owned 1 TV, 15 owned 2 TV's,
    12 owned 3 TV's and 8 owned 4 TV's.
    Show this information on the pie chart.
    Label the pie chart clearly.

Angle size

1 TV .... ☐

2 TV's .... ☐

3 TV's .... ☐

4 TV's .... ☐

Minimum mark	7	5	4	2	
Circle grade	A	B	C	D	E

8

30 Probability
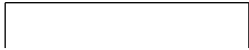
1   The probability that a new battery does not
    work is 0.04.

    a   What is the probability that a new battery
    does work?   1a .... ☐

    b   A firm produced 5000 batteries.
    How many would you expect to be faulty?   1b.................... ☐

2   Three horses compete in a race. Show all of the
    possible outcomes. Two possible results are: 2..................... ☐
                                                        .... ☐
       Amber   Boss   Caddy   (ie ABC)
                                                        .... ☐
       Amber   Caddy   Boss   (ie ACB)
                                                        .... ☐

3   A bag contains 4 white, 3 red and 2 black discs.
    What is the probability of choosing:

    a   A white disc?   3a .... ☐

    b   A red disc?   3b.................... ☐

    c   A black disc?   3c.................... ☐

    d   A yellow disc?   3d .... ☐

    e   A red or white disc?   3e.................... ☐

    f   A red or black disc?   3f .... ☐

    g   A white or black disc?   3g .... ☐

    h   A red or black or white disc?   3h.................... ☐

4   The probability of a cooker having a fault in the
    first year is 0.12.

    a   What is the probability of a cooker not having
    a fault in the first year?   4a .... ☐

    b   If 2000 cookers are produced, how many would
    you expect to develop a fault in the first year?   4b.................... ☐

Minimum mark	13	11	8	5	
Circle grade	A	B	C	D	E

16