St Dunstan's College
11+ Specimen Paper
Mathematics

Full Name	
Candidate Number	

INSTRUCTIONS

Time available: 55 minutes

- **Write down your first and last names and candidate number in the boxes provided.**
- Do not open the paper until you are told to do so.
- You must make sure that your answers can be easily understood.
- If you cannot answer a question, go on to the next one, you can return to it later.
- The marks in brackets at the end of the question indicate how much it is worth.

Do not write in the box below. This is for examiners' use only.

Total	

1. A Start

Work out the following:

439 + 516	565 – 128

439 × 9 Answer…….	966 ÷ 7 Answer…….

(4)

2. Numbers

Look at the numbers in the list:

7, 8, 13, 20, 36, 42, 49, 50, 72 and **99**, then write down:

a) the prime numbers _____ _____

b) the square numbers _____ _____

c) the multiples of 8 _____ _____

d) the factors of 100 _____ _____

(8)

3. Pictogram

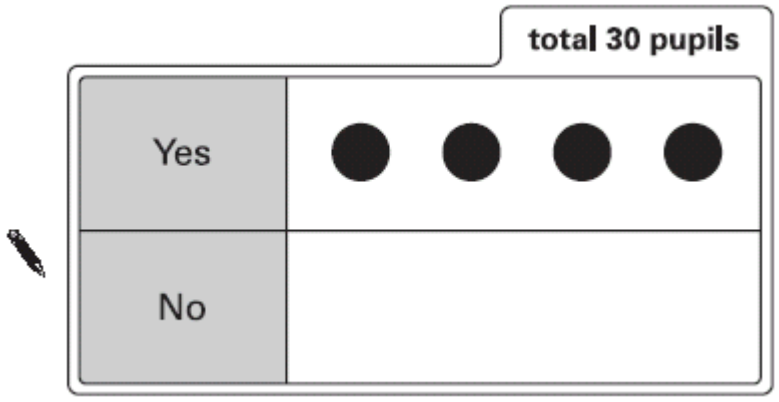
a) Alan asked 30 pupils if they travel to school by bus.

20 pupils said yes.

10 pupils said no.

He started to draw a pictogram using the key ● represents 5 pupils.

Complete the pictogram to show Alan's results.



(1)

b) Susan asked 20 pupils which subject they like best.

She drew this pictogram but forgot to write the key.

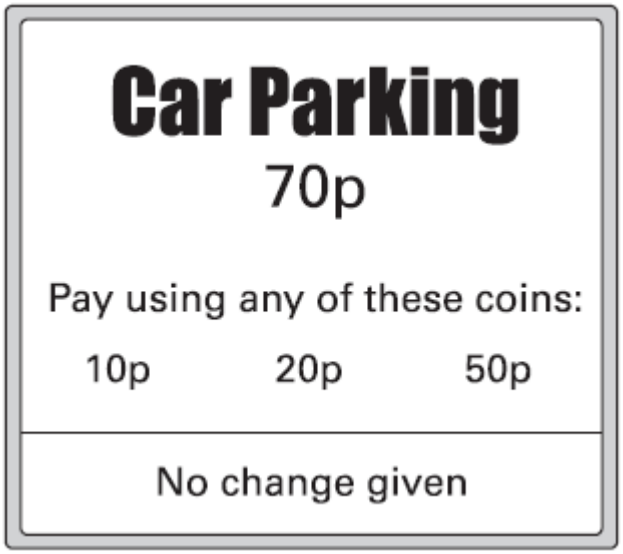


How many pupils does  represent?

_____ pupils (1)

4. Car parking

A car park shows this sign.



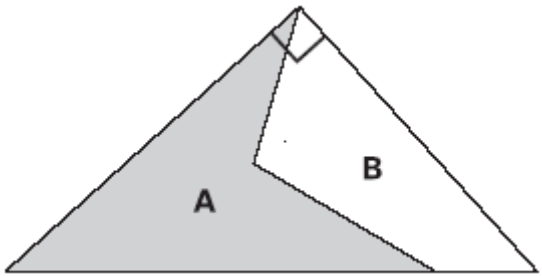
Complete the table to show all the different ways of paying **exactly** 70p.

Number of 10p coins	Number of 20p coins	Number of 50p coins
7	0	0

(3)

5. Shapes

The drawing shows how shapes A and B fit together to make a **right-angled triangle**.

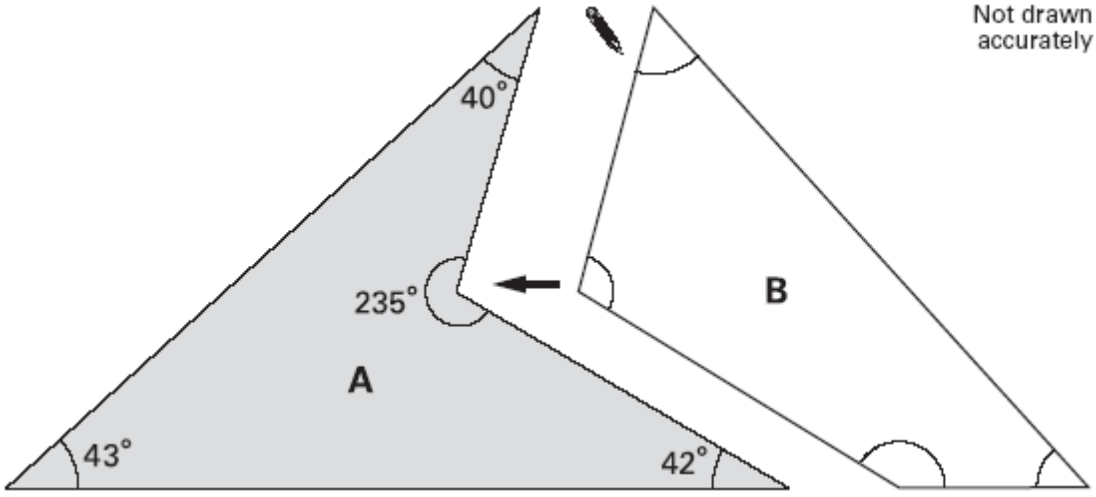


a) Use your ruler to measure the **perimeter** of the right-angled triangle above and write your answer in centimetres and then in millimetres below.

_____ cm _____ mm (2)

b) **Calculate** the size of each of the four angles in shape B.

Write them **on your diagram** in the correct place in shape B below.



(4)

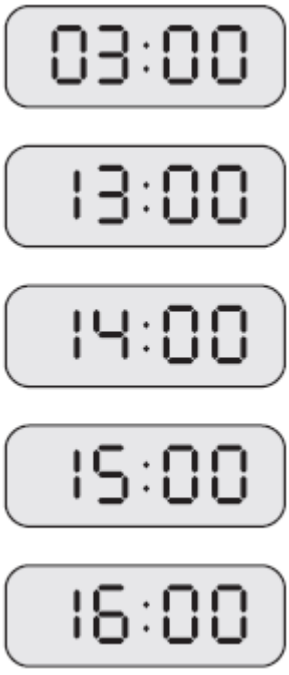
6. Clock

a) My wall clock shows this time:



Which two of the digital clocks below could be showing the same time as my wall clock?

Tick (✓) the correct two.



(2)

b) Early in the **morning** my wall clock shows this time:



My digital clock shows the same time as my wall clock.

Write what time my digital clock is showing.



(1)

c) In the **afternoon** my wall clock shows this time:



My digital clock is a 24 hour clock.

Now what time is my digital clock showing?



(1)

d) Work out the **angle** between the two hands of the wall clock if it shows **4pm**.

_____ °

(3)

7. Thinking fractions

Two examples have been done for you. Now fill in the missing numbers.

$\frac{1}{2}$ **of 40 = 20**

$\frac{1}{3}$ of 90 = _____ (1)

$\frac{2}{5}$ of 20 = _____ (1)

$\frac{1}{2}$ **of 20 = 10 =** $\frac{1}{4}$ **of 40**

$\frac{1}{3}$ of 60 = _____ = $\frac{1}{4}$ of _____ (2)

$\frac{1}{5}$ of 30 = _____ = $\frac{1}{3}$ of _____ (2)

$\frac{2}{3}$ of 60 = _____ = $\frac{2}{5}$ of _____ (2)

8. Missing whole numbers

Write in the boxes what the missing whole numbers could be.

You have to remember **two** rules:

- you are **not** allowed to use the numbers **0** and **1**
- you are **not** allowed to use the **same** number more than once <u>in the same line</u>

e.g. 6 + 3 + 6 = 15 is a **wrong** answer for the first question because it uses 6 twice in the same line.

6	+		+		=	15	(2)
60	÷		-		=	15	(2)
10	×		÷		=	15	(2)
30	–		x		=	15	(2)

9. Travel to work

a) I pay £12.50 to travel to work each week.

I work for 24 weeks each year.

How much do I pay to travel to work each year?

Show all your working.

£ (4)

b) Alternatively, I could buy one season ticket that would let me travel for all 24 weeks.

It would cost £360.

How much is that per week?

Show all your working.

£ (3)

10. Adverts

In a magazine there are three types of advert on the same page:

Advert 1 uses 7½% of the page,

Advert 2 uses 20% of the page,

Advert 3 uses 50% of the page.

a) What is the total percentage of the page if **one of each** type of advert is used?

_____ % (1)

b) Will the three adverts take up more or less than **three-quarters** of the page?

_____ (1)

An advert costs **£100** for each **5%** of a page

c) What will be the cost for **Advert 3**?

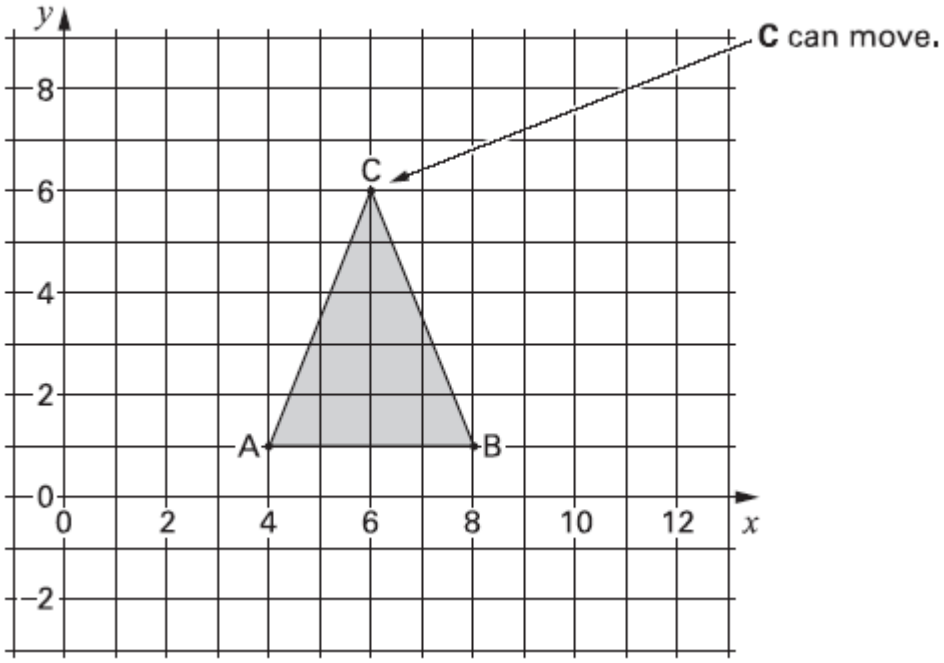
£ _____ (2)

d) What will be the cost for **Advert 1**?

£ _____ (2)

11. Moving C

- On this grid, **A** and **B** must not move.



When C is at (6, 6) triangle ABC is **isosceles**.

a) Draw a line of symmetry on the diagram above. (1)

b) C moves so that triangle ABC is still **isosceles**.

Where could C have moved to?

Write the coordinates of its new position.

(____ , ____) (2)

c) C then moves so that triangle ABC is **isosceles** and **right-angled**.

Where could C have moved to?

Write down the coordinates of its new position.

(____ , ____) (2)

The area of one square on the grid is **1 square unit**.

d) C now moves so that triangle ABC has an area of **4 square units**.

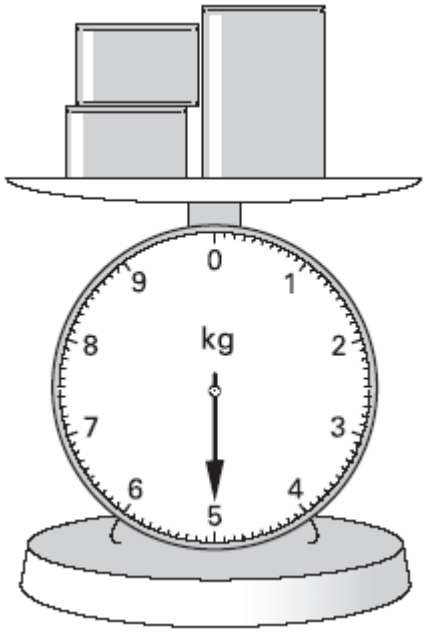
Where could C have moved to?

Write the coordinates of its new position.

(____ , ____) (2)

12. Finding the mass

There are two small tins and one big tin on these scales.



The two small tins each have the same mass, called x.

The mass of the big tin is **two** times the mass of a small tin.

a) Write an expression for the total mass on the scales in terms of x.

_____ (1)

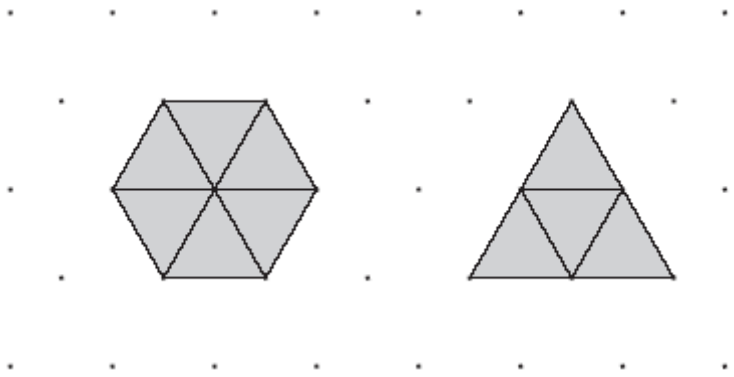
b) What is the mass of one small tin?

Show your working.

kg (2)

13. Perimeter and area

Look at the hexagon and the triangle.



a) Do the hexagon and triangle have the same **area**?

Tick (✓) Yes or No.

☐ Yes ☐ No (1)

The **area** of one small triangle is **1 square unit**.

b) Calculate the areas of the hexagon and the triangle.

Hexagon = _____ Triangle = _____ (2)

c) Do the hexagon and triangle have the same **perimeter**?

Tick (✓) Yes or No.

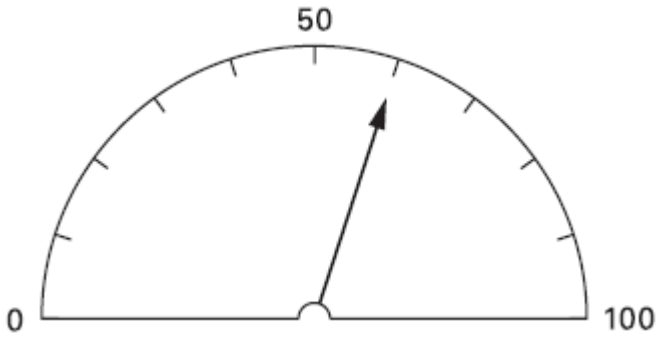
☐ Yes ☐ No (1)

d) If the **perimeter** of one **<u>small</u>** triangle is **6 units**, calculate the perimeters of the hexagon and the large triangle.

Hexagon = _____ Triangle = _____ (3)

14. Scales

a) Look at this scale.



What value is the arrow pointing to on the scale?

_____ (1)

b) Here is a different scale.

Draw an arrow (↓) so that it shows **the same value** as the arrow in part (a).



(1)

15. Wind chill

When the wind blows it feels colder.

The stronger the wind, the colder it feels.

Fill in the gaps in the table.

The first row has been done for you.

Wind strength	Temperature out of the wind (°C)	How much colder it feels in the wind (°C)	Temperature it feels in the wind (°C)	
Moderate breeze	5	7 degrees colder	-2	
Fresh breeze	-8	11 degrees colder	_____	(1)
Strong breeze	-4	_____ degrees colder	-20	(1)
Gale	_____	23 degrees colder	-45	(1)

16. Shoe sizes

a) There are **five** people in Chantelle's family.

Their shoe sizes are 4, 5, 6, 7 and 10.

What is the **median** shoe size in her family?

_____ (1)

b) What is the **mean** shoe size in her family?

_____ (3)

(c) There are **four** people in James' family.

Their shoe sizes are 4, 6, x and y.

The **range** of these shoe sizes is 8.

The **modal** shoe size is 6.

The **mean** shoe size is 7.

What are the two missing shoe sizes in James' family?

x = _____ y = _____ (4)

17. Winning ticket

A teacher wants to choose one pupil from Year 4, 5 or 6 to appear on television.

The teacher gives each pupil in the school one ticket.

She then selects the winning ticket at random.

The table shows information about the tickets used.

	Colour of the ticket	Numbers used
Year 4	red	1 to 80
Year 5	blue	1 to 75
Year 6	yellow	1 to 90

a) How many pupils in total have been given a ticket?

_____ (1)

b) Write the probability, as a fraction, that the winning ticket will be **blue**.

_____ (2)

c) Write the probability, as a fraction, that the winning ticket will show number **81**.

_____ (1)

d) The teacher selects the winning ticket at random.

She says: 'The winning ticket number is **39**'.

Write the probability, as a fraction, that this winning ticket is **blue**.

_____ (2)

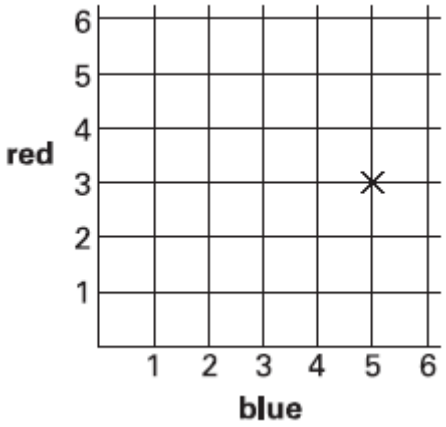
18. Throwing dice

Some pupils throw two fair six-sided dice. Each die is numbered 1 to 6.

One die is blue. The other die is red.

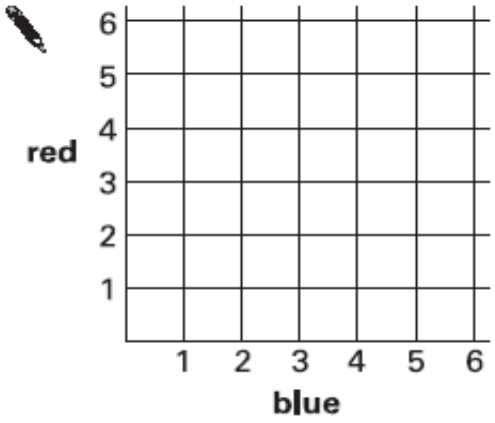
Jasmine's dice show blue 5, red 3. Her total score is 8.

The cross on the grid shows Jasmine's throw.



a) Eamon's total score is 6.

Put crosses on the grid to show **all the different pairs** of numbers that Eamon's dice could show.

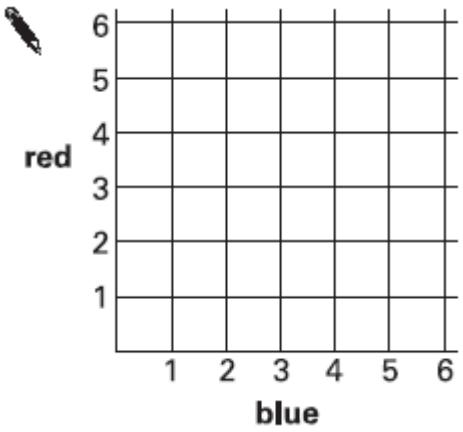


(2)

b) The pupils play a game.

Winning rule:	Win a point if the number on the **blue** dice is the **same as** the number on the **red** dice.

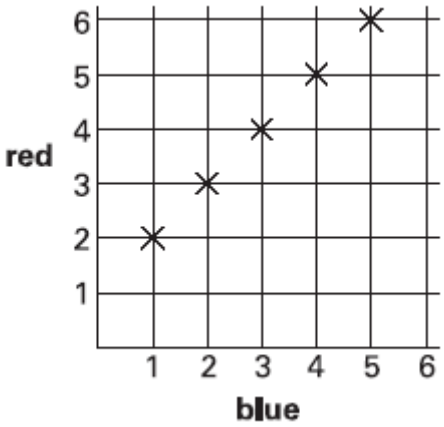
Put crosses on the grid below to show **all the different** winning throws.



(2)

c) The pupils play a different game.

The grid shows all the different winning throws.



Complete the sentence below to show the winning rule.

Winning rule:	Win a point if the number on the **blue** dice is .....

(1)

NOW GO BACK AND CHECK YOUR WORK.