



# Entrance Examination

## SAMPLE PAPER

### 11+ (Year 7)

## Mathematics

Your name:

Date of birth:

Today's date:

Age:

YEARS

MONTHS

Please read the following information before the examination starts.

Time allowed: One hour

Calculators are NOT to be used.

1) Write in figures the number seven million, four hundred and eighty thousand and twenty four

2) Write in words the number 2,305,069

3) Work out

(a)  $3178 + 927$

(b)  $2018 - 394$

(c)  $428 \times 6$

4) Fill in missing digits in the following sums:

a)

$$\begin{array}{r} \phantom{+} \phantom{0} 5 \phantom{0} 8 \phantom{0} 4 \\ + \phantom{0} 7 \phantom{0} \square \phantom{0} 9 \\ \hline 1 \phantom{0} 3 \phantom{0} 1 \phantom{0} 3 \end{array}$$

b)

$$\begin{array}{r} \phantom{-} 7 \phantom{0} 8 \phantom{0} 1 \\ - \phantom{0} 3 \phantom{0} 6 \phantom{0} 9 \\ \hline 4 \phantom{0} \square \phantom{0} \square \end{array}$$

c)

$$\begin{array}{r} \phantom{\square} \phantom{0} 1 \phantom{0} 6 \\ \square \phantom{0} 1 \phantom{0} 2 \phantom{0} 8 \end{array}$$

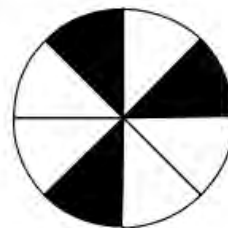
d)

$$\begin{array}{r} \phantom{\times} \phantom{0} 9 \phantom{0} 6 \\ \times \phantom{0} \phantom{0} \phantom{0} \square \\ \hline 6 \phantom{0} 7 \phantom{0} 2 \end{array}$$

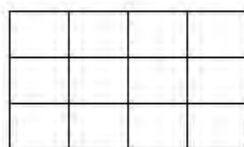
5) a. Look at this diagram

(i) What fraction is shaded?

(ii) What fraction is unshaded?



b. Shade  $\frac{2}{3}$  of this diagram



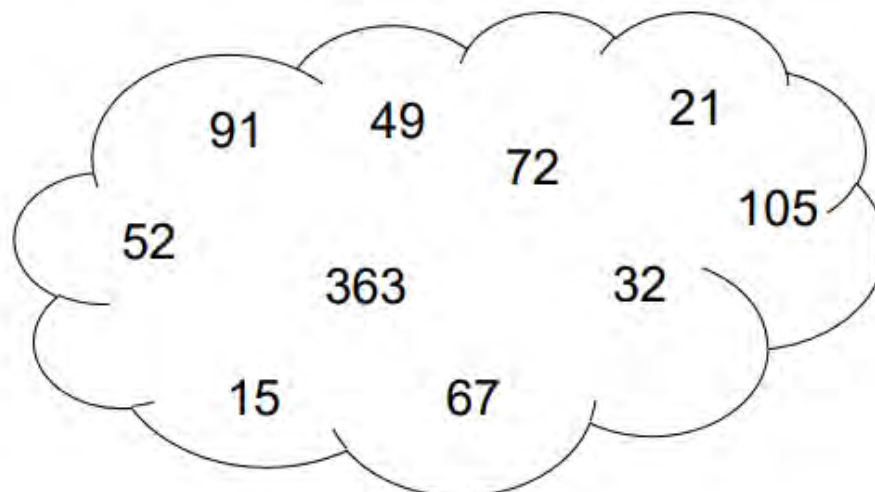
c. In an orchestra of 24 children,  $\frac{3}{4}$  of them are girls. How many are boys?

6) A diver is below the surface of the water at  $-30\text{m}$ . He goes up by 12 metres and then down 4 metres. How far below the surface is he now?

- 7) The temperature at 9 o'clock is  $16^{\circ}\text{C}$ . During the day it falls by  $22^{\circ}\text{C}$ .  
What is the temperature in the evening?
- 8) A bag contains 60 sweets. 25 are red, 17 are green, 8 are blue and the rest are yellow.
- (a) How many sweets are yellow?
- (b) What fraction of the sweets are red? Give your answer in its simplest form.
- 9) A box of 92 Smarties contains only red, green and purple Smarties. If there are 37 red Smarties and 29 green Smarties how many purple Smarties does it contain?
- 10) Below is a list of the six tallest buildings in the City of London, given in metres:

"The Gherkin"	180 m
Broadgate Tower	164 m
Heron Tower	230 m
"The Walkie Talkie"	160 m
"The Cheesegrater"	225 m
Tower 42	183 m

- (a) How tall is Tower 42 in **millimetres**?
- (b) How tall is "The Gherkin" in **kilometres**?
- (c) The Shard is a building outside the City of London. It measures 310 m.  
What is the difference in height, in **metres**, between The Shard and the tallest building in the City of London?
- 11) Using only the numbers in the cloud, write **one** number for each of the properties below.



- (a) Multiple of 6:
- (b) Factor of 60:
- (c) Prime number:
- (d) Square number:

12) Write these decimals in order of size, starting with the smallest:

5.22      5.02      5.202      5.2

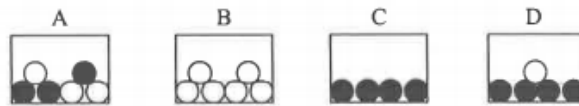
13) (a) What is 376 minutes in hours and minutes?

(b) Change 8.4 hours into minutes.

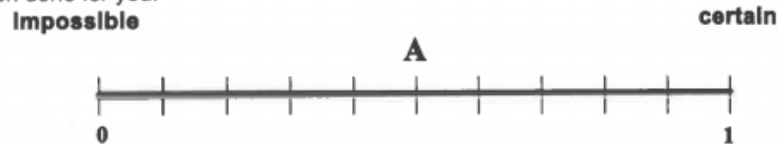
14) How many minutes are there between 9.23 am and 11.06 am?

15) I am facing west and turn clockwise  $45^\circ$ .  
In what direction am I now facing?

16) Joyce has four boxes with marbles in them. The marbles are either white or black. The diagrams below show how many white marbles and how many black marbles are in each box?



Put the letters B to D on the line below to show the chance (or probability) of taking a **black marble** from each box. Box A has been done for you.



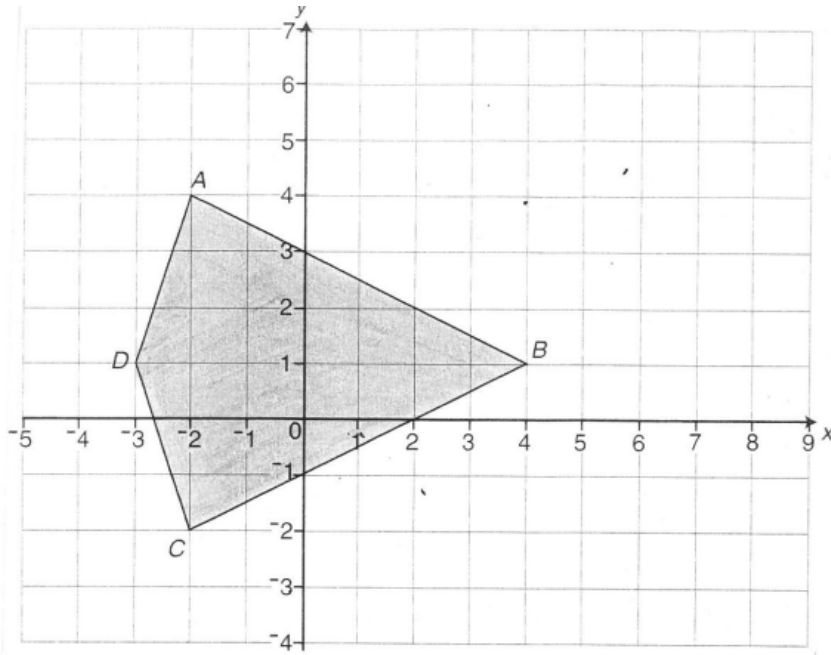
17) I think of a number, subtract 11 and then double it. The result is 34.  
What number was I thinking of?

18) A list of angles is given below

$179^\circ$ ,  $10^\circ$ ,  $47^\circ$ ,  $273^\circ$ ,  $81^\circ$ ,  $330^\circ$

How many acute angles are there in the list? \_\_\_\_\_

19)



a. Write the coordinates of the points  $A, B, C$  and  $D$ .

Answer:  $A$  ( \_\_\_\_\_ , \_\_\_\_\_ )

Answer:  $B$  ( \_\_\_\_\_ , \_\_\_\_\_ )

Answer:  $C$  ( \_\_\_\_\_ , \_\_\_\_\_ )

Answer:  $D$  ( \_\_\_\_\_ , \_\_\_\_\_ )

b. Name the shape  $ABCD$       Answer: \_\_\_\_\_

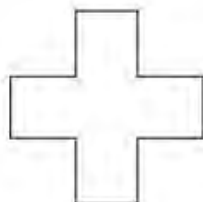
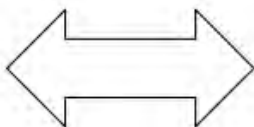
c. On the grid above draw and label shape  $PQRS$  with the following co-ordinates:

$P(6, -2)$     $Q(5, 2)$     $R(6, 6)$     $S(7, 2)$

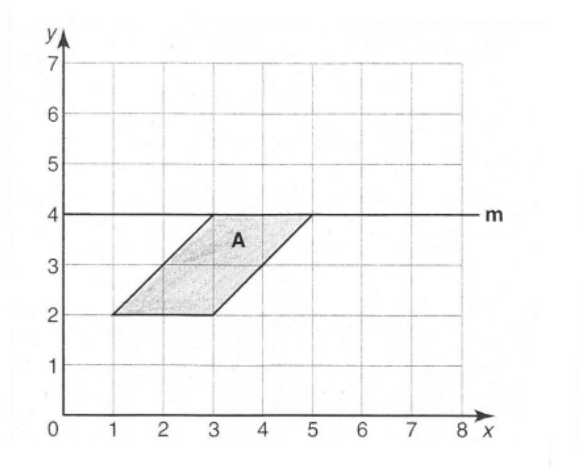
d. Name the shape  $PQRS$  that you have just drawn.

Answer: \_\_\_\_\_

20) Draw all the lines of symmetry on the following shapes:



- 21) a. Shape A is drawn on a centimetre-square co-ordinate grid.



- i. Which type of quadrilateral is shape A?

Answer: \_\_\_\_\_

- ii. What is the area of shape A?

Answer: \_\_\_\_\_ cm<sup>2</sup>

- iii. Reflect shape A in the mirror line m.

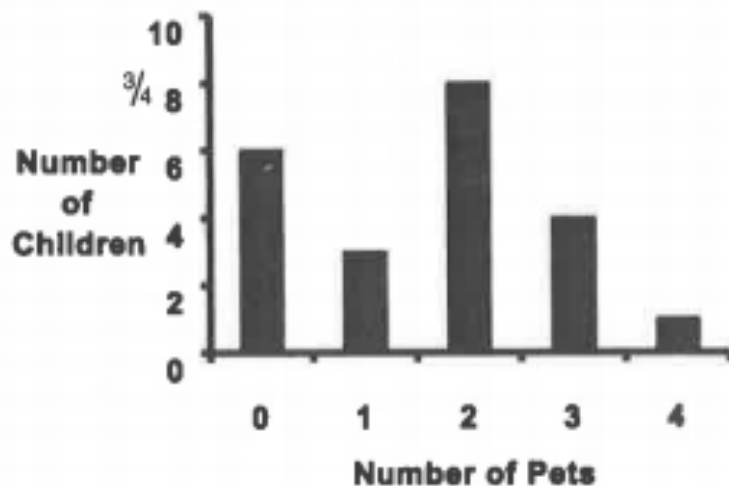
22)

The diagram below shows the number of pets owned by the members of a class.

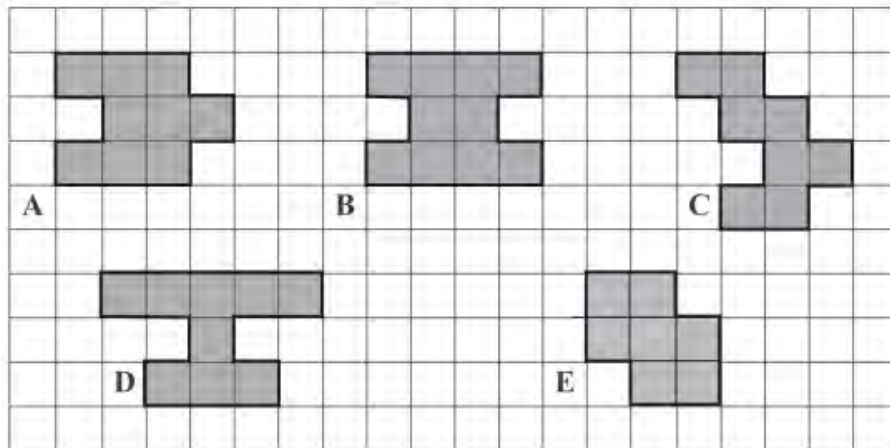
For example three children have one pet each.

(a) How many children have no pets?

(b) How many children have **more** than one pet?

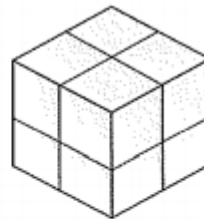


- 23) Shapes A, B, C, D and E are drawn on the grid below.



- (a) Which shape has the smallest area?  
 (b) Which shape has the longest perimeter?

- 24) Cube A has a volume of  $8 \text{ cm}^3$ .



not to size

cube A

Another cube, B, has edges which are twice the length of the edges of cube A.

Work out the volume of cube B.

- 25) a. In her purse, Agatha has five coins with a total of 93 pence.

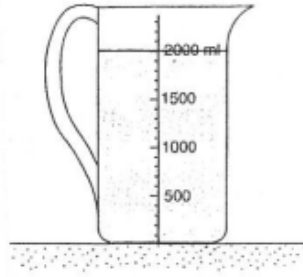
She take the following three coins:



What are the other two coins?

Answer: \_\_\_\_\_ and \_\_\_\_\_

- b. Miss Tickit has a large measuring jug in which there is some water.



- i. How many litres of water are in the jug?

Answer: \_\_\_\_\_ litres

- ii. Miss Tickit fills seven 200 millilitre glasses with water from the jug. How many millilitres of water remain in the jug?

Answer: \_\_\_\_\_ ml

- iii. How many more glasses could Miss Tickit fill from the jug?

Answer: \_\_\_\_\_