Leicester High School for Girls

Year 7 Entrance Exam

Specimen

Mathematics

Time: 1 hour

You will need a ruler, but you must not use a calculator.

Answer as many questions as you can. Write your answers in the spaces provided and show all your working clearly.

Name:_____ Age: _____

Present School: _____

Mark ____/100

1. Calculate
   a. 836 + 79 – 108

Answer _____ (2)

   b. 34 x 8

Answer _____ (2)

   c. 259 ÷ 7

Answer _____ (2)

2. Exercise books come in packs of 25. The school needs 480 exercise books.
   a. How many packs must be bought?

Answer_____ (3)

   b. Each pack costs £6.
   Work out the total cost of the exercise books.

Answer_____ (2)

3. Curtain material costs £4.25 per metre.
   a. How much will it cost to buy 10 metres?

Answer_____ (1)

   b. Mrs Brown buys a length of this material and pays £17.
   How many metres does she buy?

Answer_____ (2)

4. A school are collecting tokens for 'free books'. Sarah brings 28 tokens to school. Leena brings 13 less than Sarah and Jane brings in 7 more than Sarah.
   a. How many tokens does Leena bring?

Answer_____ (2)

   b. How many tokens do the three girls bring in total?

Answer_____ (2)

5. a. Write down in figures the number ten thousand and thirty-eight.

Answer_____ (1)

b. Write in words the number 57210

Answer_____ (1)

c. Write down the number that is 3 less than 4000.

Answer_____ (2)

d. Write down the number which is one tenth greater than 7.6.

Answer_____ (2)

e. What is the value of the 7 in the number 53714.

Answer_____ (1)

6. A return train ticket for an adult travelling from Leicester to Cambridge costs £29.40.

a. Find the cost of 3 adult return tickets.

Answer_____ (3)

b. The price of a childrens ticket is half that of an adult ticket. What is the cost of a return ticket for a child travelling from Leicester to Cambridge?

Answer_____ (2)

7. Choose from this set of numbers: 11 12 13 14
15 16 17 18

a. a square number

Answer _____ (1)

b. a multiple of 5

Answer _____ (1)

c. three prime numbers

Answer_____ _____ _____ (3)

d. two factors of 60

Answer_____ _____ (2)

e. ¾ of 24

Answer _____ (2)

f. The two numbers which multiplied together will produce the largest product.

Answer_____ _____ (2)

8. Look at these numbers

6.07 6.705 7.6 7.00 6.75

Write them in order of size smallest first.

Answer: smallest_____ _____ _____ _____ _____largest (3)

9. In each of the following statements N stands for a number. Write down the value of N which makes each of the statements true.

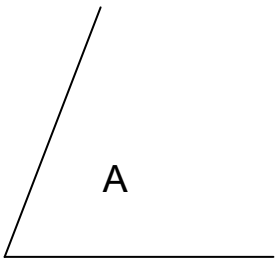
a. 7 + N = 13 Answer: N = _____ (1)

b. 4 x N = 36 Answer: N = _____ (1)

c. N x N = 25 Answer: N = _____ (1)

d. N – 6 = N ÷ 2 Answer: N = _____ (2)

10.



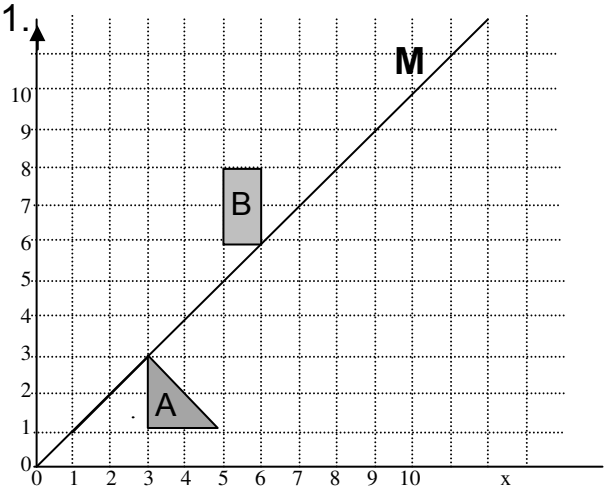
The diagram shows an angle A.

a. What kind of angle is A? Answer: _____ (1)

b. Estimate (do not use a protractor) the angle A in degrees.

Answer: _____ (2)

11.

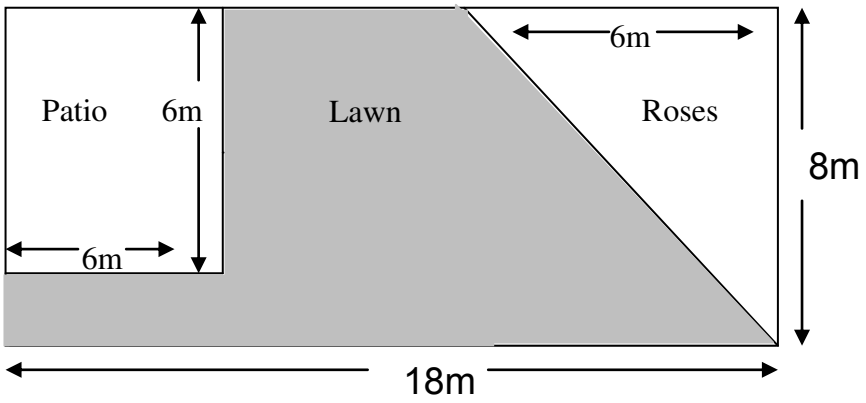


a. Name shape A
Answer _____(1)

b. Reflect A in the mirror line M and shade the reflection you obtain. (2)

d. Rotate B 180° about (6,6) (2)

20. The diagram shows the design for a garden measuring 18m by 8m. The shaded area is to be the lawn.



a. Calculate the area of the whole garden.

Answer _____ (2)

b. Calculate the area of the triangular rose plot.

Answer _____ (2)

c. Calculate the shaded lawn area.

Answer _____ (3)

13.

Mon	Tues	Wed	Thurs	Fri	Sat	Sun
1p	1p, 1p	1p,1p,1p,1p				

Mary is saving pennies. She draws the grid above for seven days of the week. Each day she will save twice as much as she saved the day before. On Monday she saves 1p, Tuesday 2p and Wednesday 4p as planned.

a. How much did she save on

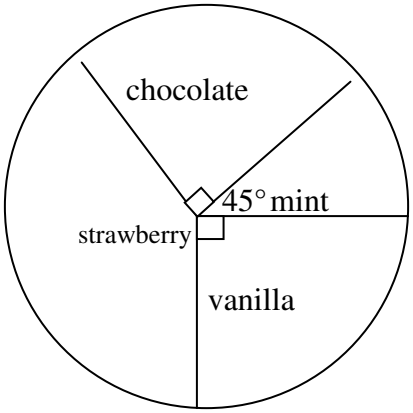
i. Thursday? Answer _____ (1)

ii. Saturday? Answer_____ (1)

b. How much will she save in total for the whole week?

Answer _____ (2)

14.



The pie chart shows the flavour of ice cream preferred by the 120 students taking school lunch.

a. Calculate the angle for the strawberry sector.

Answer _____ (2)

b. How many students preferred chocolate?

Answer _____ (2)

c. How many students preferred strawberry?

Answer _____ (2)

15.

Score out of 10	6	7	8	9	10
Frequency	1		4	5	2

This frequency table shows Anna's score out of 10 in 15 weekly mental arithmetic tests.

a. How many times did she score full marks?

Answer _____ (1)

b. How many times did she score 7 out of 10?

Answer _____ (1)

c. Which score was the mode?

Answer _____ (1)

16. A printing company charges a fixed price of £30 plus £10 per hundred copies to print a leaflet. Beth is asked to draw up a table to show the charges for customers.

She starts the table

Number of copies	0	100	200	500	1000
Price charged £	30	40	50		

a. Complete the table by filling in the figures for 500 and 1000 copies of the leaflet.

(2)

b. A customer pays £110. How many copies of the leaflet were printed?

Answer _____(2)

17. The timetable shows the times of 3 trains travelling from Birmingham to Leicester in the afternoon.

Birmingham New Street-Nuneaton-Narborough-Leicester			
	Train 1	*Train 2*	*Train 3*
Birmingham New Street	16 03	16 20	17 07
Nuneaton	16 30	16 58	17 36
Narborough	16 45	17 11	17 50
Leicester	16 56	17 25	18 03

a. Which train is the slowest?

Answer _____ (1)

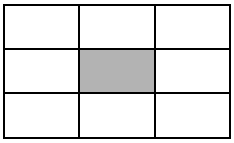
b. Which train should Mrs Brown catch if she wants to be back in Leicester by 5 pm?

Answer _____ (1)

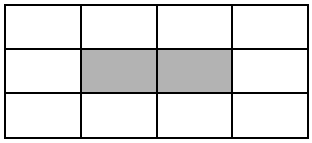
c. How long does train 3 take from Birmingham New Street to Leicester? Give you answer in minutes.

Answer _____ (2)

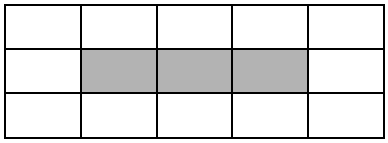
18. Look at the patterns of grey and white tiles:



Pattern 1



Pattern 2



Pattern 3

Complete the following table for patterns 1 to 3 and extend the table for patterns 4 and 5.

Pattern number	Number of grey tiles	Number of white tiles
1	1	8
2	2	
3		
4		
5		

(4)

19. Meera is 1.62 m tall and Ellie is 1.39 m tall.

a. How much taller is Meera than Ellie? Give your answer in centimetres.

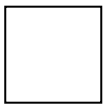
Answer: _____cm (2)

b. Meera is now exactly 3 times as tall as she was when she was born. What was her height in centimetres when she was born?

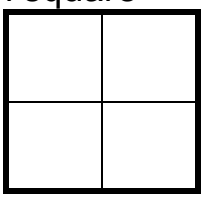
c.

Answer: _____cm (2)

20..Square patterns are drawn as follows

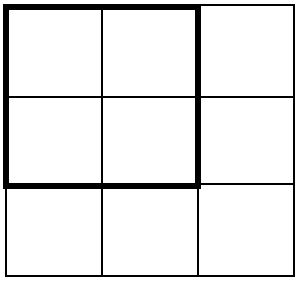
Pattern 1 small square  1 square

Pattern 2 medium square



1 large square + 4 small squares
gives a total of 5 squares

Pattern 3 large square



_____large square

_____medium squares

_____small squares

(note the medium squares can overlap)

makes a total of _____ squares

a. Complete the missing numbers of squares for pattern 3.

(4)

b. What do you notice about the numbers of different sized squares?
Answer_____

_____ (1)