

# Year 7 Spring Assessment

## Calculator

### Mathematics

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Name \_\_\_\_\_

Date \_\_\_\_\_

Teacher \_\_\_\_\_

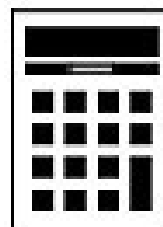
Time allowed 55 minutes

The maximum mark for this paper is **50**



#### Instructions

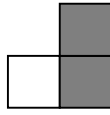
- Use a black or blue pen
- Calculator allowed
- Draw diagrams in pencil
- Answer all questions
- You must answer the questions in the spaces provided
- Do all rough work in this booklet
- Cross through any work you do not want to be marked
- You must keep working until the end of the 55 minutes



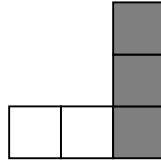
#### Information

- The results of this assessment will be reported back to parents/carers.

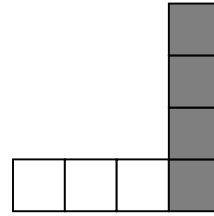
- 1 Here are the first three patterns in a sequence.  
Each pattern is made using white squares and grey squares.



Pattern 1



Pattern 2



Pattern 3

- 1 (a) Draw pattern 4

[1 mark]

- 1 (b) Work out the number of white squares and grey squares in Pattern 25

[2 marks]

White squares \_\_\_\_\_

Grey squares \_\_\_\_\_

- 1 (c) Priya says,

“The **total** number of squares will always be an odd number”

Give a reason why she is correct.

[1 mark]

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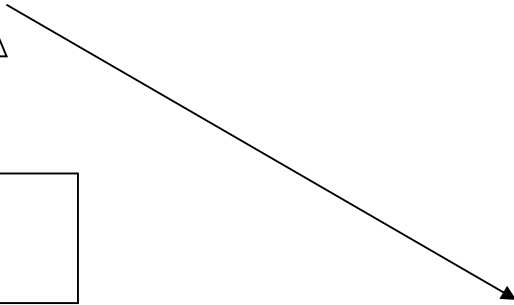
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2

Link each shape to its name.

The first one has been done for you.

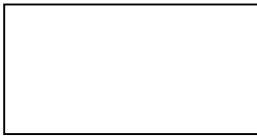
[4 marks]



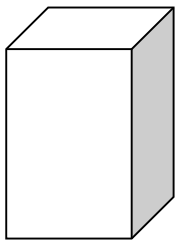
Cone

Square

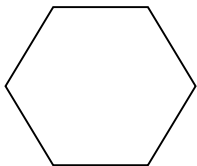
Triangle



Cube

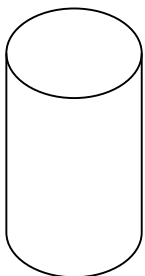


Hexagon



Pentagon

Rectangle



Cuboid

Cylinder

Circle

3

At a station,

60% of the trains arrived on time

10% of the trains arrived early.

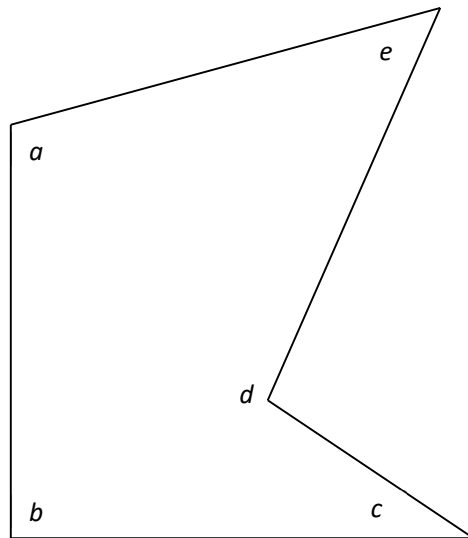
What percentage of the trains arrived late?

[1 mark]

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Answer \_\_\_\_\_ %

4



Complete the following sentences.

[3 marks]

Angle \_\_\_\_\_ is a right angle.

Angle \_\_\_\_\_ is smaller than a right angle.

Angle \_\_\_\_\_ is bigger than a right angle.

5 Equivalent fractions have the same value.

Put different numbers in the boxes so that all the fractions are equivalent.

[3 marks]

$$\frac{\boxed{1}}{\boxed{2}} = \frac{\boxed{3}}{\boxed{\phantom{00}}} = \frac{\boxed{\phantom{00}}}{\boxed{8}} = \frac{\boxed{\phantom{00}}}{\boxed{\phantom{00}}}$$

6 (a) Draw a triangle with **no** obtuse angles.

[1 mark]

6 (b) Draw a triangle with **one** obtuse angle.

[1 mark]

6 (c) Why can you **not** draw a triangle with two obtuse angles?

[1 mark]

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7 Here is a list of six numbers.

18            180            1800            18 000            180 000            1 800 000

7 (a) Which number is one hundred and eighty thousand?

[1 mark]

Answer \_\_\_\_\_

7 (b) Which number is 1.8 million?

[1 mark]

\_\_\_\_\_

Answer \_\_\_\_\_

7 (c) Which number is one-tenth of eighteen thousand?

[1 mark]

Answer \_\_\_\_\_

7 (d) Subtract the sum of the 5 other numbers in the list from 1 800 000

[1 mark]

Answer \_\_\_\_\_

8 Write down all the numbers which are

multiples of 3

**and**

factors of 45

**[3 marks]**

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Answer \_\_\_\_\_

9 Kerry earns £ 140 in one week.

9 (a) She saves  $\frac{2}{5}$  of the £ 140

How much does she save?

**[2 marks]**

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Answer £ \_\_\_\_\_

9 (b) She gives 75% of the rest of the money to her Mum.

How much does she give to her Mum?

**[2 marks]**

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Answer £ \_\_\_\_\_

- 10 Jack buys 6 ice creams for £ 8  
Two of them have flakes.  
Each ice cream **with** a flake costs £ 1.60  
The others do not have flakes.



What is the cost of one ice cream which does **not** have a flake?

[4 marks]

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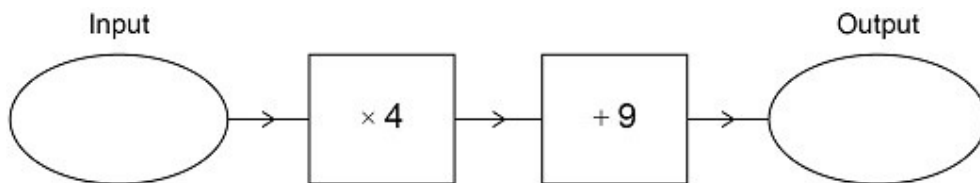
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Answer £ \_\_\_\_\_

- 11 Here is a number machine.



Work out the output when the input is 16

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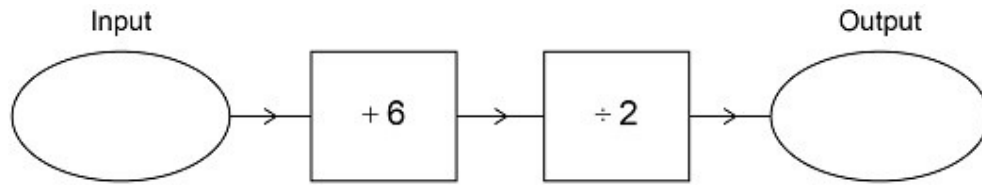
Answer \_\_\_\_\_

[1 mark]



12

Here is a number machine.



Work out the output when the input is  $-48$

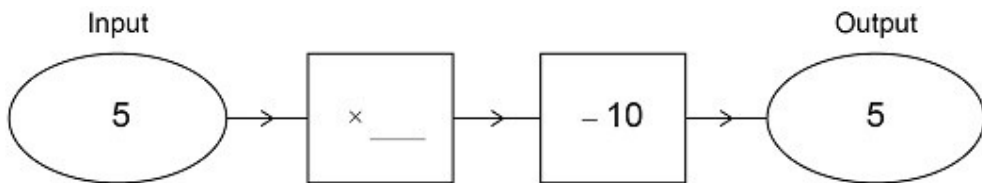
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Answer \_\_\_\_\_

[1 mark]

13

Complete this number machine.



[1 mark]

14 (a) Simplify  $a + 6a - 3a$

[1 mark]

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Answer \_\_\_\_\_

14 (b) Solve  $5x = 80$

[1 mark]

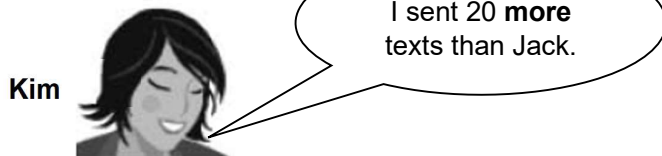
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$x =$  \_\_\_\_\_

15 Jack sent  $n$  texts last month.



15 (a)



Write an expression for the number of texts **Kim** sent.

[1 mark]

Answer \_\_\_\_\_

15 (b)

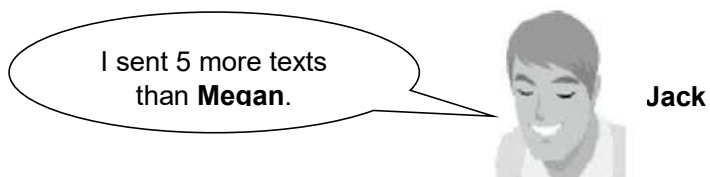


Write an expression for the number of texts **Luke** sent.

[1 mark]

Answer \_\_\_\_\_

15 (c)



Write an expression for the number of texts **Megan** sent.

[1 mark]

Answer \_\_\_\_\_

16 Use + signs and – signs to complete the following

16 (a)

$$4a \square 3c \square 2a \square 5c = 2a + 8c$$

[2 marks]

16 (b)

$$6d \square 7e \square 5d \square 4e = 11d - 3e$$

[2 marks]

17 Match each sequence to its description.

One has been done for you.

[2 marks]

1 1 2 3 5 8

Arithmetic sequence

1 2 4 8 16 32

Geometric sequence

1 2 3 4 5 6

Fibonacci sequence

1 4 9 16 25 36

Square numbers

18 Each rule below makes a sequence.

Write the next number in each sequence.

18 (a)

|                                       |   |    |    |       |  |
|---------------------------------------|---|----|----|-------|--|
| Rule: <b>Add 4</b> to the last number |   |    |    |       |  |
| 3                                     | 7 | 11 | 15 | ..... |  |

[1 mark]

18 (b)

|                                     |    |    |    |       |  |
|-------------------------------------|----|----|----|-------|--|
| Rule: <b>Double</b> the last number |    |    |    |       |  |
| 5                                   | 10 | 20 | 40 | ..... |  |

[1 mark]

18 (c)

|   |   |    |    |       |  |
|---|---|----|----|-------|--|
| Rule: <b>Multiply</b> the last number <b>by 3</b> then <b>add 1</b> |   |    |    |       |  |
| 2   | 7 | 22 | 67 | ..... |  |

[1 mark]