

8300

GCSE MATHEMATICS

Foundation and Higher tier – Questions by Topic

Algebra (substitution)

One markers

v1.0

Name _____

Materials

For this paper you must have:

- Mathematical instruments

Information

- The marks for questions are shown in brackets

Advice

- In all calculations, show clearly how you work out your answer

For questions 1 and 2 you must **NOT** use a calculator.



Q1.

x is a 2-digit whole number.
How many digits does the number $10x$ have?
Circle your answer.

cannot tell 2 3 4

(Total 1 mark)

Q2.

a is a negative odd number.
Circle the words that describe
negative and odd
positive and odd

$$a^2$$

negative and even
positive and even

(Total 1 mark)

For the rest of the questions, you may use a calculator.



Q3.

Circle the expression that has the **smallest** value when $x = 4$

$$5 - x$$

$$\frac{1}{2}x$$

$$x + 1$$

$$x - 4$$

(Total 1 mark)

Q4.

y is a whole number.
Circle the words that describe $5y$
always odd

always even

could be odd or even

(Total 1 mark)

Q5.

n is negative.
Circle the expression that is **positive**.

$$n - 1$$

$$n^2$$

$$n^3$$

$$\frac{1}{n}$$

(Total 1 mark)

Q6.

Circle the equation which has the solution $x = 6$

$$x - 3 = \frac{x}{2}$$

$$x = \frac{3+x}{2}$$

$$3x = 36$$

$$\frac{x}{6} = 0$$

(Total 1 mark)

Q7.

x is a **negative** number.
Which statement is correct?
Tick **one** box.

☐	$x + 10$ is always positive
☐	$x + 10$ is always negative
☐	$x + 10$ cannot be zero
☐	x could be positive or negative or zero

(Total 1 mark)

Q8.

$a > 0$ and $b < 0$
Circle the correct statement.

$a - b < 0$ $-\frac{b}{a} < 0$ $\frac{1}{a} < 0$ $b^3 < 0$

(Total 1 mark)

Q9.

$f(x) = x^2 - x^3$
Circle the value of $f(-3)$

18 -18 36 -36

(Total 1 mark)

Q10.

Circle the expression that has the **largest** value when $a < -1$

$\frac{1}{2}a$ a a^2 a^3

(Total 1 mark)

Question 11 is **higher** tier only

Q11.

$f(x) = 8x - 5$
Work out the value of $f(-2)$

Answer _____

(Total 1 mark)