**AQA - Algebra – GCSE Mathematics Paper 1**

**1.** May/2020/Paper_1F/No.10

$x$ is a 2-digit whole number.

How many digits does the number $10x$ have?

Circle your answer.

**[1 mark]**

cannot tell  2  3  4

**2.** May/2020/Paper_1F/No.14(b)

**(b)** Simplify fully $(2 \times 4a) + 9 + \frac{15a}{3} - 7$

**[3 marks]**

Answer _____

**3.** May/2020/Paper_1F/No.25

Factorise fully $2x^2 + 6x$

**[2 marks]**

Answer _____

**4.** May/2020/Paper_1F/No.28

Rearrange $c = \frac{d+2}{3}$ to make $d$ the subject.

**[2 marks]**

Answer _____

**5.** May/2020/Paper_1H/No.13

**(a)** $s$ and $t$ are **positive** integers.

$(x + s)(x - t)$ is expanded and simplified.

The answer is $x^2 + kx - 40$ where $k$ is a positive integer.

Work out the **smallest** possible value of $k$.

**[2 marks]**

Answer _____

**(b)** Faisal tries to solve $(x + 2)(x - 7) = 0$

Here is his working.

| | | | |
|---|---|---|---|
| | $(x + 2) = 0$ | or | $(x - 7) = 0$ |
| Answer | $x = 2$ | or | $x = 7$ |

Give a reason why his answer is wrong.

**[1 mark]**

**6.** May/2020/Paper_1H/No.19

Circle the expression that is equivalent to $\frac{x}{5} + \frac{x}{10}$

**[1 mark]**

$\frac{3x}{10}$ $\frac{2x}{15}$ $\frac{x}{25}$ $\frac{x^2}{50}$

**7.** May/2020/Paper_1H/No.28

Factorise fully $144 - 4x^2$

**[2 marks]**

Answer _____

**8.** May/2020/Paper_1H/No.29

The graph of $y = x^3 + 6$ is translated 4 units to the right.

The translated graph has equation $y = f(x)$

Work out $f(x)$.

Give your answer in the form $x^3 + ax^2 + bx + c$ where $a$, $b$ and $c$ are integers.

**[4 marks]**

Answer _____

**9.** June/2019/Paper_1F/No.2

Solve $4x = 8$

Circle your answer.

**[1 mark]**

$x = 0.5$ $x = 2$ $x = 4$ $x = 32$

**10.** June/2019/Paper_1F/No.19

You are given that $4a - 2b = 10$

**(a)** Write down the value of $2a - b$

**[1 mark]**

Answer _____

**(b)** Write down the value of $2b - 4a$

**[1 mark]**

Answer _____

**(c)** You are given that $4a - 2b = 10$ **and** $a + c = 3$

Write an expression in $a$, $b$ and $c$ that is equal to 23
Give your answer in its simplest form.
You **must** show your working.

**[2 marks]**

_____

_____

_____

_____

_____

_____

Answer _____

**11.** June/2019/Paper_1F/No.24

**(a)** $a + b = 0$

Which of these is equal to $b$?
Circle your answer.

**[1 mark]**

0 $\quad \frac{1}{a} \quad$ $a$ $\quad -a$

**(b)** $c \times d = 1$

Which of these is equal to $d$?
Circle your answer.

**[1 mark]**

1 $\quad \frac{1}{c} \quad$ $c$ $\quad -c$

**12.** June/2019/Paper_1F/No.27

Rearrange $x = 2y - 6$ to make $y$ the subject.

**[2 marks]**

Answer _____

**13.** June/2019/Paper_1F/No.28

Multiply out and simplify $(x + 5)(x - 1)$

**[2 marks]**

Answer _____

**14.** June/2019/Paper_1H/No.7

Three friends arrive at a party.

Their arrival increases the number of people at the party by 20%

In total, how many people are now at the party?

**[2 marks]**

Answer _____

**15.** June/2019/Paper_1H/No.23

Simplify $8^4 \div 32^{\frac{2}{5}}$

Give your answer in the form $2^m$ where $m$ is an integer.

**[3 marks]**

Answer _____

**16.** June/2019/Paper_1H/No.27

Angle $x$ is acute.

$$\cos x = \sin 60° \times \tan 30°$$

Work out the size of angle $x$.

You **must** show your working.

**[3 marks]**

Answer _____ degrees

**17.** Nov/2019/Paper_1F/No.2

Solve $3x = 6$

Circle your answer.

**[1 mark]**

$x = 0.5$ $x = 2$ $x = 3$ $x = 18$

**18.** Nov/2019/Paper_1F/No.21

Solve $8x + 7 = 2x + 10$

**[3 marks]**

$x =$ _____

**19.** Nov/2019/Paper_1F/No.26

Given that $a \times 60 = b$ work out the value of $\frac{4b}{a}$

**[2 marks]**

Answer _____

**20.** Nov/2019/Paper_1H/No.7

Given that $a \times 60 = b$ work out the value of $\frac{4b}{a}$

**[2 marks]**

Answer _____

**21.** Nov/2019/Paper_1H/No.23

**(a)** Factorise $5x^2 + 6x - 8$

**[2 marks]**

Answer _____

**(b)** Simplify fully $\dfrac{x^2 + 9x + 14}{x^2 - 4}$

**[3 marks]**

Answer _____

**22.** Nov/2019/Paper_1H/No.27

A curve has the equation $y = x^2 - 6x + 17$

The turning point of the curve is at $(a, 8)$

**(a)** By completing the square, or otherwise, work out the value of $a$.

**[2 marks]**

Answer _____

**(b)** The turning point of the curve $y = x^2 + 4x + b$ also has $y$-coordinate 8

Work out the value of $b$.

**[2 marks]**

Answer _____