

AQA - Algebra – GCSE Mathematics Paper 21. [May/2020/Paper_2F/No.3](#)Circle the expression that has the **smallest** value when $x = 4$ **[1 mark]**

$5 - x$

$\frac{1}{2}x$

$x + 1$

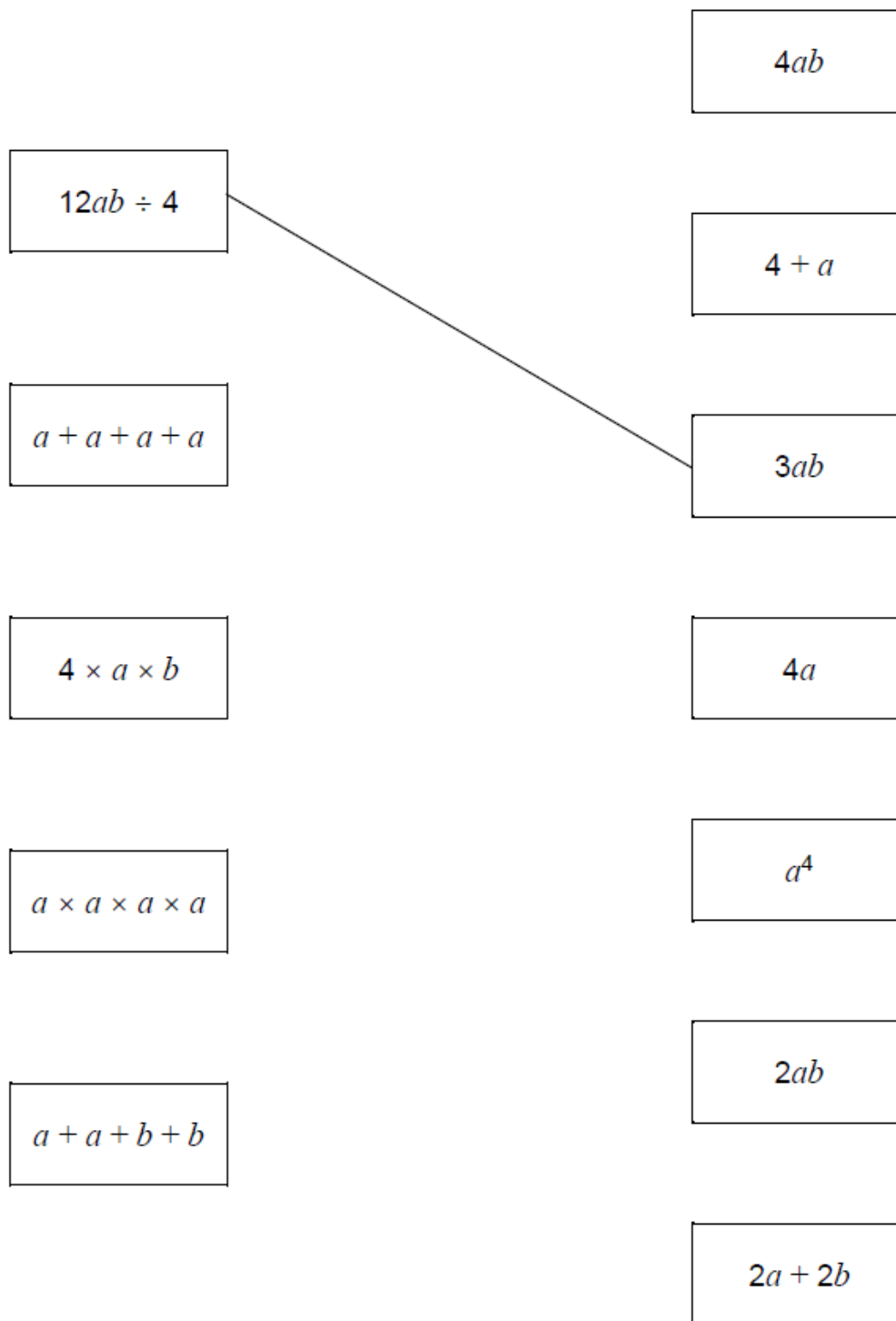
$x - 4$

2. [May/2020/Paper_2F/No.12](#)

Match each expression on the left with one on the right.

One has been done for you.

[4 marks]



3. May/2020/Paper_2F/No.20

(a) a and b are whole numbers.

$$a \leq 12 \quad b < 9$$

Work out the largest possible value of $2a + b$

[2 marks]

Answer _____

(b) x and y are both negative numbers.

Show that $\frac{y}{x}$ could equal 4

[1 mark]

4. May/2020/Paper_2H/No.1

Which of these is a correct identity?

Circle your answer.

[1 mark]

$x + 4x \equiv 5x$

$6x \equiv 18$

$2x + 1 \equiv 7$

$7x + 9 \equiv x$

5. May/2020/Paper_2H/No.4

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

[1 mark]

$\frac{1}{2}a$

a

a^2

a^3

6. May/2020/Paper_2H/No.15

Rearrange $a = \frac{b}{c} + 5$ to make c the subject.

[3 marks]

Answer _____

7. **May/2020/Paper_2H/No.19**

a and b are positive values.

Show that $\frac{7a + 2b - 3a}{8a + 6b + 2a - b}$ always simplifies to the same value.

[3 marks]

8. **May/2020/Paper_2H/No.25**

Factorise $3x^2 + 11x - 20$

[2 marks]

Answer _____

9. June/2019/Paper_2F/No.15

A line has the equation $y = x + 3$

(a) Write down the coordinates of the point where the line intersects the y -axis.

[1 mark]

Answer (_____ , _____)

(b) Write down the coordinates of the point where the line intersects the x -axis.

[1 mark]

Answer (_____ , _____)

11. June/2019/Paper_2H/No.26

$$(x + 5)(x + 2)(x + a) \equiv x^3 + bx^2 + cx - 30$$

Work out the values of the integers a , b and c .

[3 marks]

$$a = \underline{\hspace{2cm}}$$

$$b = \underline{\hspace{2cm}}$$

$$c = \underline{\hspace{2cm}}$$

13. Nov/2019/Paper_2F/No.1

Simplify $8a - 3a + a$

Circle your answer.

[1 mark]

$4a$

$6a$

$5 + a$

$8a - 3a^2$

14. Nov/2019/Paper_2F/No.7(c)

(c) Simplify fully $\frac{9m}{12m}$

[2 marks]

Answer _____

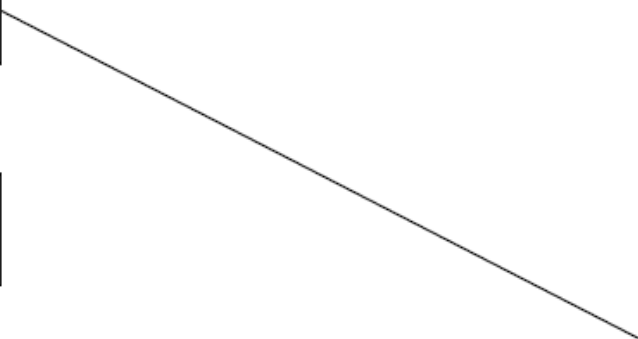
15. Nov/2019/Paper_2F/No.17

Match each expression in Column P with the equivalent expression in Column Q.

One has been done for you.

[3 marks]

Column P	Column Q
$a^2 \times a$	$6a$
$2a \times 3$	$5a$
$12a^2 \div 2$	a^3
$10 \times \frac{1}{2}a^2$	$5a^2$
	$6a^2$



16. Nov/2019/Paper_2F/No.21

a and b are both prime numbers.

They are each less than 20

Give an example where $a + b$ is odd but **not** prime.

[2 marks]

$a =$ _____ $b =$ _____

17. Nov/2019/Paper_2F/No.27

Here is an identity.

$$a(3x - 10) \equiv 21x + 2b$$

Work out the values of a and b .

[3 marks]

$a =$ _____ $b =$ _____

18. Nov/2019/Paper_2H/No.1

Expand $4x^2(3x + 5)$

Circle your answer.

[1 mark]

$32x^3$

$12x^3 + 20x^2$

$7x^3 + 9x^2$

$12x^2 + 5$

19. Nov/2019/Paper_2H/No.15

Rearrange $y = \sqrt{w^3}$ to make w the subject.

Circle your answer.

[1 mark]

$w = y^6$

$w = \sqrt[3]{y^2}$

$w = \sqrt{y^3}$

$w = y^5$

20. Nov/2019/Paper_2H/No.16

(a) Show that $a\%$ of $b = b\%$ of a

[1 mark]

(b) Rosie says,

“160% of 40 = 140% of 60 because $a\%$ of $b = b\%$ of a ”

Is she correct?

Tick a box.

Yes

No

Give a reason for your answer.

[1 mark]

21. Nov/2019/Paper_2H/No.18

Kate has the following question for homework.

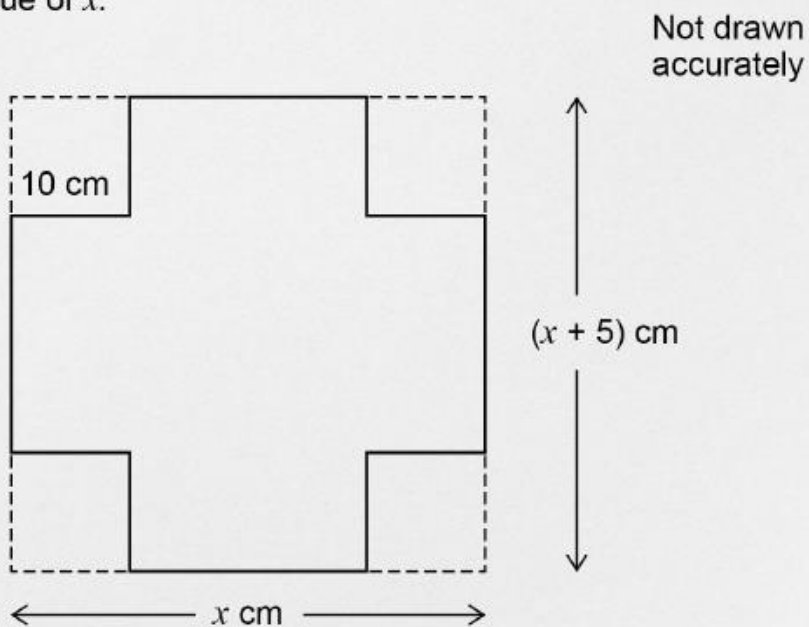
The net of a box is made by cutting four squares from a piece of cardboard.

The cardboard is a rectangle with width x cm and length $(x + 5)$ cm

Each square has side length 10 cm

The area of the net is 1000 cm^2

Work out the value of x .



- (a) Show that Kate can form the equation $x^2 + 5x - 1400 = 0$

[3 marks]

- (b) Kate correctly factorises the equation to get $(x + 40)(x - 35) = 0$

Her answer to the homework question is $x = -40$ or $x = 35$

Is her answer correct?

Tick a box.

Yes

No

Give a reason for your answer.

[1 mark]

23. Nov/2019/Paper_2H/No.27

$$x_{n+1} = \sqrt[3]{3x_n + 7}$$

Use a starting value of $x_1 = 2$ to work out a solution to $x = \sqrt[3]{3x + 7}$

Give your answer to 3 decimal places.

[3 marks]

Answer _____