

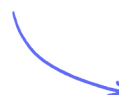
Exam Questions

Introduction to Algebra

Algebraic Notation / Algebraic Vocabulary / Substitution / Collecting Like Terms

Easy (11 questions)	/24
Medium (7 questions)	/14
Hard (5 questions)	/15
Total Marks	/53

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Easy Questions

1 Simplify.

$$6a - 3b + 2a - 4b$$

(2 marks)

2 Simplify.

$$4x + 3y + 2x - 8y$$

(2 marks)

3 $W = 3a + 5c$

Find the value of W when $a = 6$ and $c = 2$.

$W = \dots\dots\dots$

(2 marks)

4 Simplify $3c - 5d - c + 2d$

(2 marks)

5 Simplify $5w + 3h - 7w + 8h$

(2 marks)

6 Simplify $5c - d - 3d - 2c$.

(2 marks)

7 Simplify $5t + 4t - 2t$

(1 mark)

8 Simplify $8a + 3b - 2a + b$

(2 marks)

9 Simplify

(i) $4 \times b \times 3$

(ii) $13m - 8 - 7m$

(iii) $\frac{9a^2}{3a}$

(3 marks)

10 (a) Simplify $p \times q \times 6$

(1 mark)

(b) Simplify $t + t + t$

(1 mark)

(c) Simplify $\frac{6fg}{3f}$

(2 marks)

11 Pens are sold in packets and in boxes.

There are 10 pens in each packet.

There are 25 pens in each box.

Chris buys p packets of pens and b boxes of pens.

Write down an expression, in terms of p and b , for the total number of pens Chris buys.

(2 marks)

Medium Questions

1 $A = \frac{1}{4}bc^2$

Calculate the value of A when $b = 3$ and $c = 6$.

(2 marks)

2 $T = 3a^2b$

Find the value of T when $a = 4$ and $b = 5$.

$T = \dots\dots\dots$

(2 marks)

3 Kyra has a faulty thermometer.

It always shows the temperature as 2°C higher than the actual temperature.

The temperature on the thermometer is $T^\circ\text{C}$.

Write an expression, in terms of T , for the actual temperature.

$\dots\dots\dots^\circ\text{C}$

(1 mark)

4 Calculate the value of $4x^2 + xy$ when $x = 3$ and $y = -2$.

(2 marks)

5 Simplify $4x - 12y + 10x + 25y$

(2 marks)

6 Avi has m pots of olives and n bottles of olives.

There are 6 olives in each pot.

There are 30 olives in each bottle.

Avi has a total of O olives. Write a formula for O in terms of m and n .

(3 marks)

7 $Q = 3t + \frac{10}{c}$

Work out the value of Q when $t = 7$ and $c = -2$.

(2 marks)

Hard Questions

- 1 A pen costs 60 cents and a ruler costs 29 cents.

Write down an expression for the total cost, in cents, of x pens and y rulers.

..... cents

(2 marks)

2 $A = \frac{(a+b)h}{2}$

Work out the value of h when $A = 38.64$, $a = 5.5$ and $b = 3.7$

$h =$

(3 marks)

3 $c = 5a - 2b$

Find the value of c when $a = 8$ and $b = -3$.

[2]

(2 marks)

4 (a) Simplify $9x - 2y - 5x - y$

(2 marks)

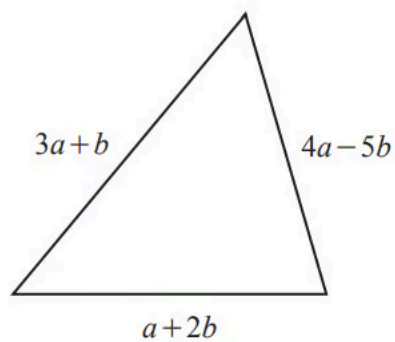
(b) $P = 4ab + 3b^2$

Work out the value of a when $P = 35$ and $b = 5$.

$a = \dots\dots\dots$

(3 marks)

5



NOT TO
SCALE

Find an expression for the perimeter of this triangle.
Give your answer in its simplest form.

(3 marks)