

KS3 Mathematics Algebra Unit 1

Assessment Mark Scheme

22 Marks

1.		(4 marks total)
a.	$4b$	(1 mark)
b.	$5a - 3b$	(1 mark)
c.	$(8a + 10b)\text{cm}$ or 1 mark for $4a + 4a + 5b + 5b$	(2 marks)
2.		(3 marks total)
a.	$7a$	(1 mark)
b.	$5cd$	(1 mark)
c.	$3e^2$	(1 mark)
3.		(2 marks total)
a.	$5a$	(1 mark)
b.	$4b$	(1 mark)
4.		(4 marks total)
a.	$a^5b^8c^2$ or 1 mark for any two indices correctly evaluated.	(2 marks)
b.	$15d^7e^{-7}$ or 1 mark for the correct coefficient and one indice or both indices correctly evaluated.	(2 marks)
5.		(9 marks total)
a.	$3a + 6$ or 1 mark for 1 correct term.	(2 marks)
b.	$b^2 - 6b$ or 1 mark for 1 correct term.	(2 marks)
c.	$15ac^2 - 9a^2c$ or 1 mark for 1 correct term.	(2 marks)
d.	$(12ab - 20b)^2$ or 1 mark for 1 correct term. or 1 mark for $4b(3a - 5)$ cm^2	(2 marks) (1 mark)

KS3 Mathematics

Algebra Unit 1 Assessment

Time: 30 minutes

This is your end of topic assessment. Where a question is worth more than 1 mark you should show your calculations. This test is out of 22 marks.

Name: _____

Date: _____

Lesson 1: Simplifying Expressions.

1. Simplify the following expressions.

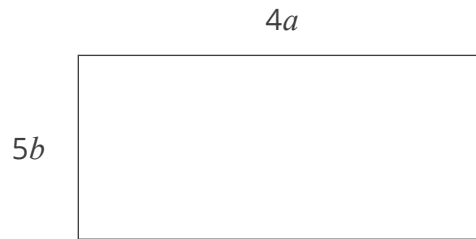
a. $b + b + b + b$

_____ [1]

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

_____ [1]

c. Find a simplified expression for the perimeter of the rectangle in terms of a and b . All measurements are given in cm.



_____ [2]

Lesson 2: Multiplying Expressions.

2. Simplify the following expressions.

a. $7 \times a$

_____ [1]

b. $c \times 5d$

_____ [1]

c. $e \times 3e$

_____ [1]

Lesson 3: Dividing Expressions.

3. Simplify the expressions.

a. $\frac{25a}{5}$

_____ [1]

b. $\frac{16ab}{4a}$

_____ [1]

Lesson 4: Expressions Including Indices.

4. Simplify the expressions.

a. $a^3b^4c \times a^2b^4c$

_____ [2]

b. $3d^3e^{-5} \times 5d^4e^{-2}$

_____ [2]

Lesson 5: Expanding Single Brackets.

5. Expand the expressions.

a. $3(a + 2)$

_____ [2]

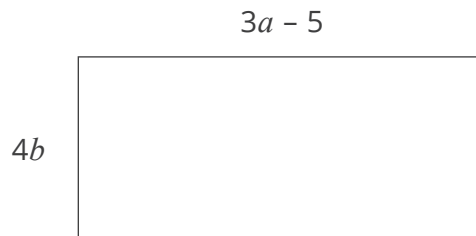
b. $b(b - 6)$

_____ [2]

c. $3ac(5c - 3a)$

_____ [2]

d. Form an expression for the area of the rectangle. Leave your expressions in expanded form. All measurements are given in cm.



_____ [3]

KS3 Mathematics Algebra Unit 1 Practice Assessment Mark Scheme

22 Marks

1.		(4 marks total)
a.	$3b$	(1 mark)
b.	$3a - 2b$	(1 mark)
c.	$(4a + 6b)\text{cm}$ or 1 mark for $2a + 2a + 3b + 3b$ or $2(2a) + 2(3b)$	(2 marks)
2.		(3 marks total)
a.	$5a$	(1 mark)
b.	$2cd$	(1 mark)
c.	$2e^2$	(1 mark)
3.		(2 marks total)
a.	$3a$	(1 mark)
b.	$10b$	(1 mark)
4.		(4 marks total)
a.	$a^5b^4c^4$ or 1 mark for any two indices correctly evaluated.	(2 marks)
b.	$6d^4e^2$ or 1 mark for the correct coefficient and one indice or both indices correctly evaluated.	(2 marks)
5.		(9 marks total)
a.	$2a + 14$ or 1 mark for 1 correct term.	(2 marks)
b.	$b^2 - 5b$ or 1 mark for 1 correct term.	(2 marks)
c.	$6ac^2 - 8a^2c$ or 1 mark for 1 correct term.	(2 marks)
d.	$6ab + 12b$ or 1 mark for 1 correct term. or 1 mark for $3b(2a + 4)$ cm^2	(2 marks) (1 mark)

Mathematics

bra Unit 1 Practice Assessment

This practice assessment should help you prepare for your end of topic assessment. It has helpful hint boxes that you should recognise from your lessons. These will not be on your assessment sheet. Where a question is worth more than 1 mark, you should show your workings. This test is out of 22 marks.

Name: _____

Date: _____

Lesson 1: Simplifying Expressions.

To simplify an expression, you **collect like terms together**. Terms are **like** when they use the same letters.

1. Simplify the following expressions.

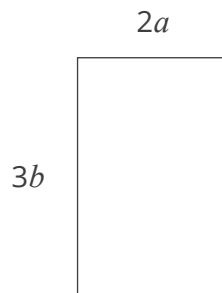
a. $b + b + b$

_____ [1]

b. $a + b + 2a - 3b$

_____ [1]

c. Find a simplified expression for the perimeter of the rectangle in terms of a and b . This means that your answer should contain a and b . All measurements are given in cm. **Remember, to find the perimeter you add up all the edges.**



_____ [2]

Lesson 2: Multiplying Expressions.

When you multiply algebraic expressions, multiply the **numbers** then the **letters**. **Remember, mathematicians do not put the '×' sign between the numbers or letters.**

2. Simplify the following expressions.

a. $5 \times a$

_____ [1]

b. $c \times 2d$

_____ [1]

c. $e \times 2e$

_____ [1]

Lesson 3: Dividing Expressions.

When you divide algebraic expressions, divide the numbers then the letters.

3. Simplify the expressions.

a. $\frac{15a}{5}$

_____ [1]

b. $\frac{20ab}{2a}$

_____ [1]

Lesson 4: Expressions Including Indices.

$$a^n \times a^m = a^{n+m}$$

$$\frac{a^n}{a^m} = a^{n-m}$$

4. Simplify the expressions.

a. $a^2b^3c^2 \times a^3bc^2$

_____ [2]

b. $2d^2e^{-3} \times 3d^2e^5$

_____ [2]

Lesson 5: Expanding Single Brackets.

*Expand the brackets. This means that **everything** inside the bracket must be multiplied by everything outside the bracket.*

5. Expand the expressions.

a. $2(a + 7)$

_____ [2]

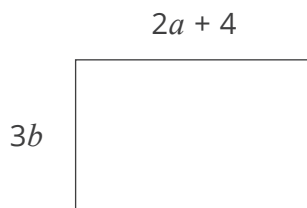
b. $b(b - 5)$

_____ [2]

c. $2ac(3c - 4a)$

_____ [2]

d. Form an expression to find the area of the rectangle. This means your answer will not be a value. All measurements are given in cm.



_____ [3]