

Algebra

Unit Test

PART A

Instructions This part consists of 12 multiple-choice questions
Each question is worth 1 mark
Fill in only ONE CIRCLE for each question
Calculators are NOT allowed

Time allowed: 15 minutes

Total marks = 12

				Marks		
1	$a + a + a$ equals	(A) a^3	(B) $3a^2$	(C) $3a$	(D) $3a^3$	1
2	$2x + 3x$ equals	(A) $5x^2$	(B) $6x^2$	(C) $6x$	(D) $5x$	1
3	$6x - 2x$ equals	(A) 4	(B) $4x$	(C) $4x^2$	(D) x	1
4	$5 \times a \times c \times c$ equals	(A) $5ac$	(B) $5a^2c$	(C) $5ac^2$	(D) $5ac^3$	1
5	$a + a + a + b + b$ equals	(A) $a^3 + b^2$	(B) $3a + 2b$	(C) $3a^3 + 2b^2$	(D) $a^2 + ab + b$	1
6	5 less than x is	(A) $x - 5$	(B) $5 - x$	(C) $5x - 1$	(D) $5x + 1$	1
7	$3 \times x + 4 \times y$ equals	(A) $x^3 + y^4$	(B) $12xy$	(C) $3x + 4y$	(D) $7xy$	1
8	If $a = 2$ and $b = 3$ then $2a + 3b$ equals	(A) 12	(B) 13	(C) 25	(D) 36	1
9	If $x = 3$ then $3x - x^2$ equals	(A) 9	(B) 0	(C) 27	(D) 1	1
10	When $2x$ is added to the sum of $3x$ and $5y$ then the result is	(A) $6x^2 + 5y$	(B) $3x + 10y$	(C) $30x^2y$	(D) $5x + 5y$	1
11	If $3y = 15$ then y equals	(A) 3	(B) 5	(C) 15	(D) 45	1
12	$a^4 \times a^7$ equals	(A) a^{28}	(B) a^{47}	(C) a^{11}	(D) a^3	1

Total marks achieved for PART A

12

Algebra

Unit Test

PART B

Instructions This part consists of 15 questions
Each question is worth 1 mark
Write answers in the answers-only column

Time allowed: 20 minutes

Total marks = 15

Questions	Answers only	Marks
1 Simplify $2 \times a \times 7 \times b$	_____	<input type="text" value="1"/>
2 Simplify $5x + 3y - 2x - y$	_____	<input type="text" value="1"/>
3 Write in a shorter way $5 \times 6(3 \times a - 2)$	_____	<input type="text" value="1"/>
4 If $a = 5$ find $2a^2$	_____	<input type="text" value="1"/>
5 If $x = 3$ and $y = 5$ find $2x + 3y$	_____	<input type="text" value="1"/>
6 Find the sum of $2x$, $3y$ and 8.	_____	<input type="text" value="1"/>
7 To the sum of $5x$ and y add $3y$	_____	<input type="text" value="1"/>
8 Divide $2a$ by b and then add 7 to it.	_____	<input type="text" value="1"/>
9 Write in a shorter way 11 plus x , all divided by 5.	_____	<input type="text" value="1"/>
10 What is the difference between a and b , divided by the sum of a and b ?	_____	<input type="text" value="1"/>
11 What is the product of 4, p and 3?	_____	<input type="text" value="1"/>
12 What is $2m$ subtracted from the product of m and n ?	_____	<input type="text" value="1"/>
13 Simplify $5x^3 \times 4x^2$	_____	<input type="text" value="1"/>
14 Simplify $\frac{a^5 \times a^3}{a^2}$	_____	<input type="text" value="1"/>
15 Expand $5(3x + 7)$	_____	<input type="text" value="1"/>

Total marks achieved for PART B

Answers – Algebra

PAGE 1 1 a $x+y$ b $x-5$ c $2a$ d $a-b$ e $\frac{x}{2}$ f $7m$ g $x+21$ h $l+3m+2n$ 2 a $3x$ b $\frac{x}{3}$ c $x+12$ d $x-7$ e $x+2$
f $x-7$ 3 a $a+8$ b $x+y$ c $x+y+z$ d $2a+3b+8c$ e $2l+8m+3n$ f $5x+2y+3z$ 4 a $6x+3y+2n$ b $mn-3$ c $\frac{x}{y}-9$

d $\frac{p+q}{9}$ e $\frac{9+y}{3}$

PAGE 2 1 a 8 b 7 c 11 d 32 e 51 f 30 g 23 h 10 i 15 j 46 k 13 l 37 2 a $7a, 5a$ b $3x, 2x$ c $8x, 3x$ d $5a, 3a$
e $6y, 2y$ f $2l, 5l$ g $3c, 5c$ h $5a, 3a$ i $9x, x$ 3 a $2y$ b $4x$ c $5m$ d $3a$ e $6l$ f $4n$ g $5d$ h $8k$ i $10a$ 4 a $15x$ b $3b$ c $12a$
d $10a$ e $9x$ f $9a$ g $8m$ h $12p$ i $9x$ 5 a $5d$ b $6ac$ c abc d $8xy$ e $15m$ f $4ac$ g $7xy$ h $16ab$ i $5cde$ 6 a $3 \times a \times b$
b $5 \times x \times y \times z$ c $7 \times m \times n \times t$ d $6 \times m$ e $8 \times a \times b \times c$ f $9 \times a \times l \times m$ g $15 \times x \times y$ h $11 \times d \times e \times f$

PAGE 3 1 a $4a+2b$ b $4x+4y$ c $5c+d$ d $m+3n$ e $3p+3q$ f $6l+2m$ g $6u+v$ h $3e+2f$ 2 a $6x+16$ b $15a+12$
c $9a+3b$ d $7x+2y$ e $16m+8n$ f $7x+11y$ g $14d+8a$ h $8x+6a+21$ 3 a $18a+b$ b $2x+4y$ c $13m+4n$ d $2p+5q$
e $6x+9y$ f $2p+2q$ g $53x+9$ h $3abc$ i $8l+14m$ j $14x+3y$ 4 a $6xy$ b $6xyz$ c $4abc$ d $62a+31b$ e $13x^2y$ f $12a^3$
g $11x^2$ h $12a^2+18b^2$ i $16ab+5abc$ j $12a^2b+5l$ k $10x^2y^2+11y$ l $8a^2b^2+5ab$ m $8a^2b+4ab^2$ n $18xyz+y$

PAGE 4 1 a $8m$ b $6n$ c $6x^2$ d $6 \times x \times y$ e $24 \times m$ and $8 \times m = 16m$ 2 a $18k$ b $8m$ c $x+3y$ d $5(a+2)$ e $\frac{n}{3}$ f xyz

g $6b$ h $9pq$ i $21ab$ j $2n-5$ k $3+8a$ l $3x+4y$ m $\frac{9}{a}$ n $\frac{2x}{9}$ o $\frac{k}{12}$ p $\frac{p+q}{7}$ q $\frac{8a}{a+2}$ r $\frac{4a+8}{3a}$ 3 a $3 \times m$ b $2 \times x$ c $7 \times y$
d $3 \times n-1$ e $4 \times m+5$ f $20-3 \times a$ g $x \times y-6$ h $k-4 \times l$ i $x \times y \times z$ j $19 \times x \times y$ k $6 \times a \times a+1$ l $m \times m-n \times n$
4 a $3(x+2)$ b $5(m-8)$ c $8p(q+2)$ d $6(a-5)$ e $ab(c+4)$ f $4(5a-1)$ g $7(4+3x)$ h $5(3y-2z)$ i $(n+2)(n+3)$
j $(4p+1)(4q-3)$ k $3a^3$ l a^2y^3

PAGE 5 1 a 15 b 25 c 11 d 9 e 27 f 8 g 14 h 6 i $\frac{1}{2}$ j 9 k 9 l $\frac{1}{9}$ 2 a 7 b 16 c 73 d 70 e 19 f 45 g 90 h 28

i 20 j 2 k 14 l 54 3 a 5, 6, 7, 8, 9 b 2, 7, 27, 37 c 12, 11, 7, 5, 3 d 2, 5, 8, 11, 14, 17 e 3, 7, 11, 15, 19 f 17, 14, 11, 8, 5,
4 a 6, 2, 8, 16, 4, 16 b 4, 2, 3, 9, 1, 11 c 9, 5, 14, 49, 4, 25 d 7, 5, 6, 36, 1, 20 e 12, 6, 27, 81, 9, 33 f 15, 1, 56, 64, 49, 38

PAGE 6 1 a m^3 b a^6 c l^4 d x^7 e p^2 f q^5 2 a $b \times b$ b $x \times x \times x \times x \times x$ c $a \times a \times a \times a$ d $m \times m \times m \times m \times m \times m \times m$
e $e \times e \times e$ f $f \times f \times f \times f \times f \times f \times f \times f$ 3 a 4 b 32 c 16 d 8 e 128 f 6 4 a $3a^3$ b $8y^2$ c $6x^4$ d $2p^4$ e $9h^3$ f $9m^4$
5 a $5 \times x \times x$ b $8 \times a \times a \times a$ c $7 \times y \times y \times y \times y$ d $6 \times m \times m \times m \times m \times m$ e $11 \times x \times x \times x \times x$ f $9 \times y \times y \times y$ 6 a 4 b 24 c 10
d 17 e 43 f 243 g 5 h 96

PAGE 7 1 a x^8 b y^5 c a^7 d m^8 e p^9 f n^{11} g a^{10} h x^7 i y^{12} 2 a x^5 b x^6 c x^4 d y^2 e y^2 f a^5 g m^9 h m i m^4
3 a a^6 b b^{12} c a^{20} d x^{18} e x^{14} f x^{10} g $25x^4$ h $8x^9$ i $9b^{10}$ 4 a $3x^9$ b $4x^{11}$ c $3a^{13}$ d $6m^7$ e $48k^5$ f $21m^{11}$ g m^7n^7
h x^6y^{10} i x^4y^3 j $3x^2y^6$ k $2m^2n$ l $2x^5y^3$ 5 a a^4b^6 b $x^{15}y^3$ c $m^{21}n^6$ d x^8 e x f a^2 g a^{10} h a^7 i b^{10} 6 a x^2 b x^4 c x^4
d x^3 e x^2 f x^2

PAGE 8 1 a $3a+6b$ b $15a+5b$ c $8a+2b$ d $21m+14n$ e $48m-8n$ f $12x+32y$ g $5x+10y$ h $54a-12b$ i $15a-5b$
2 a $8a+36$ b $28x-7y$ c $18x-72y$ d y^2+3y e x^2+4x f a^2+ab g k^2-3k h $4l^2-20l$ i $2p^2-12p$ 3 a $2a^2+3a$
b $6m^2-14m$ c $2p^2+8p$ d $2x^2+7x$ e $16y^2+56y$ f $21p^2-7p$ g $3m^2-9m$ h $12x^2+30x$ i $10a^2-55a$ 4 a $18y+30$
b $56a-21b$ c $9x-9y$ d $40y-35$ e $20a-8b$ f $4a+2b$ g $6x-4y$ h $3p^2-6p$ i $7a+21b$ 5 a ay^3-4ay b x^4-7x

PAGE 9 1 a $x=8$ b $a=56$ c $y=4$ d $y=40$ e $m=66$ f $x=45$ g $y=9$ h $b=72$ i $m=96$ j $x=54$ k $p=5$ l $x=9$ m $x=6$
n $n=45$ o $x=8$ 2 a $x=24$ b $a=7$ c $x=63$ d $a=125$ e $x=9$ f $m=80$ g $m=48$ h $x=50$ i $x=13$ j $a=9$ k $y=32$ l $x=14$
m $x=15$ n $n=4$ o $x=7$

PAGE 10 1 a $x=3$ b $m=5$ c $y=3$ d $a=7$ e $p=5$ f $x=9$ g $y=5$ h $n=4$ i $m=6$ j $x=7$ k $y=3$ l $a=5$ m $y=11$ n $x=7$
o $a=7$ 2 a $x=3$ b $p=11$ c $x=9$ d $m=3$ e $d=5$ f $a=4$ g $y=6$ h $a=9$ i $m=2$ j $x=5$ k $x=6$ l $y=9$ m $a=14$ n $a=10$
o $x=10$

PAGE 11 1 $x=14$ 2 $x=9$ 3 $x=12$ 4 $x=9$ 5 $x=11$ 6 $x=12$ 7 $x=7$ 8 $x=4$ 9 $x=15$ 10 $x=15$ 11 $x=26$ 12 $x=6$ 13 $x=70$
14 $x=3$ 15 $x=8$

PAGE 12 1 $4x$ 2 $5m$ 3 $x+y$ metres 4 6 5 $\$(x+8y)$ 6 8 7 7 8 20 9 14 10 72 11 10 12 $xy \text{ cm}^2$ 13 $2a-3b$ metres
14 $3x+4y$ km 15 $2(3p+4q)$ metres

PAGE 13 1 C 2 D 3 B 4 C 5 B 6 A 7 C 8 B 9 B 10 D 11 B 12 C

PAGE 14 1 $14ab$ 2 $3x+2y$ 3 $30(3a-2)$ 4 50 5 21 6 $2x+3y+8$ 7 $5x+4y$ 8 $\frac{2a}{b}+7$ 9 $\frac{11+x}{5}$ 10 $\frac{a-b}{a+b}$ 11 $12p$
12 $mn-2m$ 13 $20x^5$ 14 a^6 15 $15x+35$