

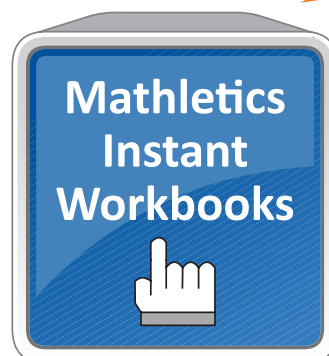
MATHLETICS

Inspiring Better Results

Basic Algebra

Student Book - Series I-1

$$7(4x - y) = \underline{\quad}$$



Basic algebra

Student Book - Series I

Contents

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Author of The Topics and Topic Tests: AS Kalra

Basic algebra

Topic 1: Addition and subtraction of like terms

QUESTION 1 Simplify the following expressions by collecting like terms.

a $2x + 3x =$ _____ b $5x - 2x =$ _____

c $5a + 4a =$ _____ d $9y - 6y =$ _____

e $3y + 7y =$ _____ f $4q - 3q =$ _____

g $8m + 6m =$ _____ h $9a - a =$ _____

i $2b + 15b =$ _____ j $8t - 2t =$ _____

k $7n + 5n =$ _____ l $5mn + 3mn =$ _____

m $8p - 5p =$ _____ n $8xy + 7xy =$ _____

o $7p - 3p =$ _____ p $18x^2 - 12x^2 =$ _____

QUESTION 2 Simplify the following.

a $5p + 6p - 3p =$ _____ b $8m - 3m - 2m + 7m =$ _____

c $8x - 5x + 7x =$ _____ d $4xy + 6xy - 3xy - 2xy =$ _____

e $12y - 4y + 5y =$ _____ f $8k + 4k + 2k - 5k =$ _____

g $8xy + 2xy + 5xy =$ _____ h $9a + 2a + 3a - 7a =$ _____

i $6m - 3m + 10m =$ _____ j $11p + 5p - 7p =$ _____

k $5a + 7a + 3a + 6a =$ _____ l $6ab - 3ab - ab + 2ab =$ _____

m $8x^2 + 7x^2 - 6x^2 - 3x^2 =$ _____ n $6a^2 + 7a^2 + 8a^2 - 10a^2 =$ _____

o $4x - 2x + 9x - 6x =$ _____ p $11y - 6y - 3y - y =$ _____

QUESTION 3 Simplify by collecting like terms.

a $4x + 3x + 2y + 7y =$ _____ b $11a + 7b - 3a =$ _____

c $3m + 7m + 8n + 9m =$ _____ d $9c - 6c - 2c + 3d =$ _____

e $8a + 7a - 2m - 3m =$ _____ f $9x^2 - x^2 - 3x^2 =$ _____

g $3x + 2y + 5x =$ _____ h $12mn - 6mn + 3mn =$ _____

i $8y + 7x - 3x - 2x =$ _____ j $5x + 7y - 4y - 2x =$ _____

k $8m + 2n + 9n + 2n =$ _____ l $5t + 17 - 2t - 8 =$ _____

m $7y + 6y - 3x + 7x =$ _____ n $6a + 9 - 3a =$ _____

o $12 - 3x - 2x =$ _____ p $9m + 7mn - 6m - 2mn =$ _____

q $10m + 5n + 3n + 4m =$ _____ r $5x + 3y - 2x - 2y =$ _____

Basic algebra

Topic 2: Multiplication and division of pronumerals

QUESTION 1 Find the products of the following.

- a $7 \times 3a =$ _____ b $4a \times 9b =$ _____
c $4m \times 5n =$ _____ d $ab \times a =$ _____
e $(-2x) \times 5 =$ _____ f $(-8m) \times (-2m) =$ _____
g $4a \times (-3a) =$ _____ h $(-9m) \times (-3) =$ _____
i $8 \times 3b \times b =$ _____ j $(-5x) \times (-x) =$ _____
k $(-2a) \times (-3b) =$ _____ l $3a \times 4am =$ _____
m $4mn \times 3m \times 2n =$ _____ n $(-2p) \times 5 \times (-5p) =$ _____
o $6ab \times 5 =$ _____ p $(-6m) \times (-5mn) =$ _____

QUESTION 2 Work out the following divisions.

- a $\frac{12a}{4}$ _____ b $\frac{16m}{2m}$ _____
c $\frac{10a^2b}{5a^2}$ _____ d $25m \div 5m =$ _____
e $12a \div -6 =$ _____ f $-10pq \div 5p =$ _____
g $(-32a) \div (-8a) =$ _____ h $-48xy \div -16x =$ _____
i $50ab \div 25ab =$ _____ j $-9xy \div xy =$ _____
k $5x \div (-5) =$ _____ l $60m \div (-10m) =$ _____
m $18xy \div xy =$ _____ n $-18a \div 6a =$ _____
o $abc \div ab =$ _____ p $9ab \div 3a =$ _____
q $5m \div 4m =$ _____ r $(-36mn) \div (-9m) =$ _____

QUESTION 3 Simplify the following.

- a $2a \times 3a \times 4b =$ _____ b $5x \times 2x \times 4 =$ _____
c $9x \times 8 \div 12x =$ _____ d $5a \times 9ab \div a^2b =$ _____
e $-5a \times 6a \times (-2) =$ _____ f $9mn \times 3m \div n =$ _____
g $16xyz \div 8xy \div z =$ _____ h $15 \times 2m \div 3 =$ _____
i $9 \times 6m \div 3 =$ _____ j $(6a)^2 \div 9a =$ _____
k $(-3) \times (-2p) \times 7 =$ _____ l $64ab \div 8b \div 4q =$ _____
m $15mn \div -15mn =$ _____ n $(5ab)^2 \div 25a^2b =$ _____
o $8x \times -5 \times (-2x) =$ _____ p $-3a \times 2b \times -4a =$ _____
q $18xy \div 6x \div 3y =$ _____ r $12x \times 4x \div 16x =$ _____

Basic algebra

Topic 3: Indices

QUESTION 1 Simplify the following.

a $x^5 \times x^2 =$ _____ **b** $n^9 \times n^6 =$ _____ **c** $q^3 \times q^7 =$ _____

d $a^7 \times a^7 =$ _____ **e** $9p^2 \times p^6 =$ _____ **f** $x^8 \times x^3 \times x^2 =$ _____

g $5x^6 \times 4x^5 =$ _____ **h** $a^2b \times a^3 =$ _____ **i** $10p^4 \times 10p^4 =$ _____

j $3x^4 \times 4x^3 =$ _____ **k** $9a^3 \times 6a^4 =$ _____ **l** $x^4y^3 \times x^5y^2 =$ _____

m $x^7 \times x^9 =$ _____ **n** $a^3b^3 \times a^2b^2 =$ _____ **o** $4x \times 9x^5 =$ _____

p $y^7 \times 8y^3 =$ _____ **q** $x^6 \times x^5 \times x^3 =$ _____ **r** $5a^2b \times 2a \times 3b =$ _____

QUESTION 2 Simplify the following.

a $a^9 \div a^5 =$ _____ **b** $x^7 \div x^3 =$ _____ **c** $y^{12} \div y^{10} =$ _____

d $6x^7 \div x^5 =$ _____ **e** $18a^6 \div 9a^4 =$ _____ **f** $36m^7 \div 9m^6 =$ _____

g $15n^{10} \div 5n^6 =$ _____ **h** $9a^9 \div 9a^7 =$ _____ **i** $48a^6 \div 16a^4 =$ _____

j $a^{13} \div a^9 =$ _____ **k** $k^{12} \div k^5 =$ _____ **l** $p^7q^7 \div p^4q =$ _____

m $12a^{10} \div 6a^8 =$ _____ **n** $24m^7 \div 12m^3 =$ _____ **o** $m^6n^3 \div m^5 =$ _____

p $p^9q^6 \div p^6q^3 =$ _____ **q** $a^{10}n^7 \div a^8 =$ _____ **r** $12a^6b^4 \div 6a^5b^3 =$ _____

QUESTION 3 Simplify the following.

a $(x^2)^3 =$ _____ **b** $(y^3)^5 =$ _____ **c** $(a^2)^4 =$ _____

d $(m^3)^3 =$ _____ **e** $(k^4)^2 =$ _____ **f** $(x^5)^7 =$ _____

g $(2x^3)^3 =$ _____ **h** $(3y^2)^3 =$ _____ **i** $(5m^3)^4 =$ _____

j $(2x^5)^3 =$ _____ **k** $(7p^2)^2 =$ _____ **l** $(a^2b)^3 =$ _____

m $(ab)^6 =$ _____ **n** $(x^2y^2)^3 =$ _____ **o** $(m^4n^3)^2 =$ _____

p $(3x^3y^4)^2 =$ _____ **q** $(8x)^2 =$ _____ **r** $(10a^2b^3)^2 =$ _____

QUESTION 4 Use the index laws to simplify the following.

a $x^6 \times x^3 =$ _____ **b** $y^9 \div y^3 =$ _____ **c** $(m^2)^5 =$ _____

d $a^2b^5 \times a^3b^3 =$ _____ **e** $(5m^2)^3 =$ _____ **f** $9p^2 \times 4p^7 =$ _____

g $(x^2)^3 \times x^5 =$ _____ **h** $(a^4)^3 \div a^9 =$ _____ **i** $5a^4b \times 6ab^2 =$ _____

j $5a^4 \times 3a^2 =$ _____ **k** $(6m)^2 \times (2m)^3 =$ _____ **l** $9ab \times a \times b =$ _____

m $8p^5 \div 4p^3 \times 6p =$ _____ **n** $a^2b \times a^2 \times b^2 =$ _____ **o** $x^9 \times x^7 \div x^{10} =$ _____

p $(2ab)^3 =$ _____ **q** $a^0 + (2a)^0 =$ _____ **r** $9x^0 =$ _____

Basic algebra

Topic 4: Grouping symbols

QUESTION 1 Expand the following expressions.

a $5(a + 3) =$ _____ **b** $6(x - 7) =$ _____

c $-2(6 + a) =$ _____ **d** $-5(x + 7) =$ _____

e $9(2a + 5) =$ _____ **f** $3(5x - 9) =$ _____

g $2a(6 + 3a) =$ _____ **h** $x(2x - 5) =$ _____

i $m(6m + 3) =$ _____ **j** $5x(x - 3) =$ _____

k $7n(2n - 3) =$ _____ **l** $-3a(a - 2) =$ _____

m $-2(a + 5) =$ _____ **n** $-7(3p - 4) =$ _____

o $5a(a - 1) =$ _____ **p** $-3x(2x - 2) =$ _____

q $-(x + 9) =$ _____ **r** $-(4y - 7) =$ _____

QUESTION 2 Expand and simplify by collecting like terms.

a $3(x + 5) + 6x =$ _____ **b** $6(a - 5) - 5a =$ _____

c $4(m - 3) + 2m =$ _____ **d** $2(x - 3) + 3x + 7 =$ _____

e $6y(y + 4) - 2y^2 =$ _____ **f** $6(m - 2) - 3m =$ _____

g $5x + 3(10 - x) =$ _____ **h** $9x + 3(x - 2) =$ _____

i $6m - 2(m + 1) =$ _____ **j** $2m + 3(m - 3) + 7 =$ _____

QUESTION 3 Expand and simplify.

a $3(x + 2) + 4(x - 2) =$ _____ **b** $8(m - 3) + 3(m - 2) =$ _____

c $5(p - 7) + 3(p + 2) =$ _____ **d** $8(x + 3) + 2(x - 1) =$ _____

e $4(x + 3) - 2(x + 1) =$ _____ **f** $x(x + 1) - (x - 3) =$ _____

g $5(p - 6) - 2(p - 1) =$ _____ **h** $p(5p + 6) - 3(2p - 3) =$ _____

Basic algebra

Topic 5: Substitution

QUESTION 1 If $a = 2$, $b = 3$, $c = 4$ and $d = 5$, evaluate the following.

a $abc =$ _____ b $a + b + c - d =$ _____ c $ab + bc =$ _____

d $a^2 + b^2 + c^2 =$ _____ e $bc \div a =$ _____ f $abcd =$ _____

g $b^2 + c^2 - ad =$ _____ h $b^2 + 10 =$ _____ i $3ab + 2cd =$ _____

j $3a^2c - d =$ _____ k $5c^2 - 12 =$ _____ l $a^3 + b^3 =$ _____

QUESTION 2 If $x = 5$, find the value of the following expressions.

a $3x + 2 =$ _____ b $65 - 4x =$ _____ c $4(x + 3) =$ _____

d $(2x - 7)^2 =$ _____ e $6x - x^2 =$ _____ f $2x(x - 3) =$ _____

g $(x + 2)^2 =$ _____ h $(x - 3)^2 =$ _____ i $x^3 =$ _____

j $(2x)^2 =$ _____ k $\sqrt{21 - x} =$ _____ l $2x^2 =$ _____

m $(x - 3)^3 =$ _____ n $(x + 2)(x - 2) =$ _____ o $x^2 - 7 =$ _____

QUESTION 3 If $x = 6.5$, $y = 2.4$ and $z = 5.8$, find correct to one decimal place the value of

a $x + y =$ _____ b $x + y + z =$ _____ c $x + y - z =$ _____

d $xy =$ _____ e $xyz =$ _____ f $x^2 =$ _____

g $x^2 + z^2 =$ _____ h $y^3 =$ _____ i $\sqrt{yz} =$ _____

j $(x - z) + 3 =$ _____ k $x \div y =$ _____ l $(x + y) \div z =$ _____

m $(x + y)^2 =$ _____ n $\sqrt{x + y + z} =$ _____ o $\sqrt[3]{x + y + z} =$ _____

Basic algebra

Topic 6: Common factors

QUESTION 1 Factorise the following by taking the highest common factor out.

a $5a + 5 =$ _____ b $8x - 8 =$ _____ c $3y - 3 =$ _____

d $2x + 2 =$ _____ e $6m + 6 =$ _____ f $7m + 7 =$ _____

g $3p + 6 =$ _____ h $4q + 8 =$ _____ i $6x - 9y =$ _____

j $4x - 16 =$ _____ k $9b - 18 =$ _____ l $5a + 20 =$ _____

m $2a + 6 =$ _____ n $3m + 12 =$ _____ o $6n - 24 =$ _____

p $8x - 32 =$ _____ q $3a + 15 =$ _____ r $2a + 14 =$ _____

QUESTION 2 Factorise by taking the common factor out.

a $3a + 3b =$ _____ b $5m + 5n =$ _____ c $6p - 6q =$ _____

d $7a + 14b =$ _____ e $3l - 9m =$ _____ f $m^2 + 7m =$ _____

g $y^2 + 6y =$ _____ h $9x - 18y =$ _____ i $3a - 24b =$ _____

j $4x + 4y =$ _____ k $mp - 3p =$ _____ l $8x - 32y =$ _____

m $6x - 36 =$ _____ n $3m + 12m^2 =$ _____ o $5y - y^2 =$ _____

p $9x - 6 =$ _____ q $8m - 8n =$ _____ r $6x - 3x^2 =$ _____

s $2x^2 - 4x =$ _____ t $6pq - 12p^2 =$ _____ u $10x - 10y =$ _____

QUESTION 3 Factorise the following.

a $-3x + 6 =$ _____ b $-5x + 10 =$ _____ c $-4x + 8 =$ _____

d $-6x + 18 =$ _____ e $-2x + x^2 =$ _____ f $-6a + 24 =$ _____

g $-3a + 12 =$ _____ h $-4a + 16 =$ _____ i $-6a - 12 =$ _____

j $-4y - 8 =$ _____ k $-2x - 10 =$ _____ l $-8y - 4x =$ _____

m $-3p - 9q =$ _____ n $-5x - 25 =$ _____ o $-x - 5 =$ _____

QUESTION 4 Factorise.

a $7a + 7b =$ _____ b $4a - 20 =$ _____ c $9x - 9y =$ _____

d $3m + 15 =$ _____ e $6 - 6t =$ _____ f $m^2 - 4m =$ _____

g $5ab - a^2 =$ _____ h $7m - 14n =$ _____ i $8ab - 6a^2b =$ _____

j $-4 - 12a =$ _____ k $-3 - 15p =$ _____ l $-3m - 6n =$ _____

m $9m - 36 =$ _____ n $-4a - 20a^2 =$ _____ o $-x - 7 =$ _____

Basic algebra

Topic 7: Addition and subtraction of algebraic fractions

QUESTION 1 Find the sum of these algebraic fractions.

a $\frac{x}{5} + \frac{x}{5} =$ _____ b $\frac{x}{3} + \frac{x}{3} =$ _____ c $\frac{a}{7} + \frac{a}{7} =$ _____

d $\frac{x}{2} + \frac{x}{2} =$ _____ e $\frac{m}{4} + \frac{m}{4} =$ _____ f $\frac{x}{7} + \frac{3x}{7} =$ _____

g $\frac{5a}{8} + \frac{a}{8} =$ _____ h $\frac{y}{3} + \frac{y}{4} =$ _____ i $\frac{2a}{3} + \frac{a}{5} =$ _____

j $\frac{2x}{7} + \frac{3x}{14} =$ _____ k $\frac{5m}{6} + \frac{m}{3} =$ _____ l $\frac{7a}{6} + \frac{a}{8} =$ _____

QUESTION 2 Subtract the following algebraic fractions.

a $\frac{2x}{7} - \frac{x}{7} =$ _____ b $\frac{5p}{9} - \frac{4p}{9} =$ _____ c $\frac{2b}{3} - \frac{b}{3} =$ _____

d $\frac{3m}{4} - \frac{m}{4} =$ _____ e $\frac{x}{2} - \frac{x}{5} =$ _____ f $\frac{5p}{7} - \frac{2p}{7} =$ _____

g $\frac{a}{6} - \frac{a}{12} =$ _____ h $\frac{p}{18} - \frac{2p}{12} =$ _____ i $\frac{3x}{10} - \frac{3}{5} =$ _____

j $\frac{a+1}{2} - \frac{2a}{3} =$ _____ k $\frac{2x}{3} - \frac{x+1}{4} =$ _____ l $\frac{y}{2} - \frac{3y+1}{3} =$ _____

QUESTION 3 Find the answers to the following.

a $\frac{2x}{3} + \frac{x}{3} =$ _____ b $\frac{5x}{8} - \frac{3x}{8} =$ _____ c $\frac{7x}{9} - \frac{2}{9} =$ _____

d $\frac{5p}{7} - \frac{3p}{7} =$ _____ e $\frac{2m}{5} - \frac{m}{5} =$ _____ f $\frac{p}{6} + \frac{2p}{3} =$ _____

g $\frac{3x}{7} - \frac{2x}{14} =$ _____ h $\frac{2a}{5} + \frac{a}{5} =$ _____ i $\frac{2x}{3} + \frac{x}{4} =$ _____

j $\frac{2a}{15} - \frac{a}{15} =$ _____ k $\frac{5a}{3} + \frac{a}{5} =$ _____ l $\frac{a+3}{2} + \frac{a-2}{3} =$ _____

Basic algebra

Topic 8: Multiplication and division of algebraic fractions

QUESTION 1 Find the product of these algebraic fractions.

a $\frac{x}{3} \times \frac{6}{x} =$ _____ b $\frac{5}{a} \times \frac{a}{7} =$ _____ c $\frac{24}{y} \times \frac{y}{8} =$ _____

d $\frac{mn}{5} \times \frac{15}{m} =$ _____ e $\frac{4l}{3} \times \frac{6}{8} =$ _____ f $\frac{xy}{7} \times \frac{21}{x} =$ _____

g $\frac{9a^2}{5} \times \frac{15}{18a} =$ _____ h $\frac{ab}{3} \times \frac{a}{b} =$ _____ i $\frac{p}{3} \times \frac{6}{2p} =$ _____

QUESTION 2 Divide the following algebraic fractions.

a $\frac{x}{5} \div \frac{x}{10} =$ _____ b $\frac{x}{4} \div \frac{x}{3} =$ _____ c $\frac{y}{3} \div \frac{y}{7} =$ _____

d $\frac{m}{3} \div \frac{m}{12} =$ _____ e $\frac{5m}{12} \div \frac{6m}{8} =$ _____ f $\frac{x}{y} \div \frac{y}{x} =$ _____

g $\frac{ab}{2} \div \frac{ac}{3} =$ _____ h $\frac{ab}{5} \div \frac{a}{15} =$ _____ i $\frac{m}{n} \div \frac{p}{q} =$ _____

j $\frac{6p}{5} \div \frac{2p}{3} =$ _____ k $\frac{2a}{5} \div \frac{4a}{7} =$ _____ l $\frac{p}{q} \div \frac{p}{q} =$ _____

QUESTION 3 Find the answers to the following.

a $18p^2 \div 6p =$ _____ b $\frac{a}{12} \times \frac{18}{2a} =$ _____ c $\frac{7p}{18} \times \frac{5}{14p} =$ _____

d $\frac{mn}{9} \times \frac{27}{m^2} =$ _____ e $\frac{3p}{4} \times \frac{7}{12p} =$ _____ f $\frac{p}{3} \times \frac{15}{p} =$ _____

g $\frac{m}{2} \div \frac{m}{4} =$ _____ h $\frac{m}{6} \div \frac{m^2}{18} =$ _____ i $\frac{2xy}{7} \times \frac{14}{x^2y^2} =$ _____

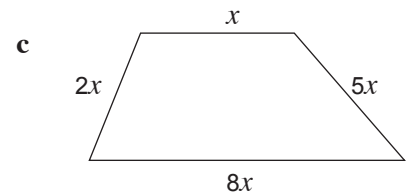
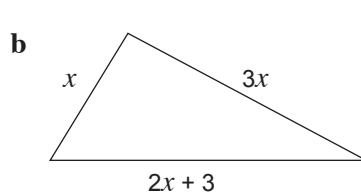
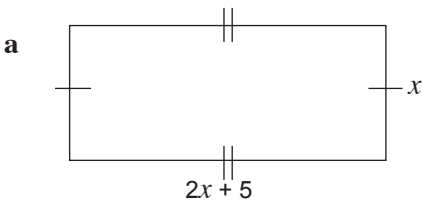
j $\frac{a}{b} \times \frac{b^2}{a} =$ _____ k $\frac{mn^2}{5p^2} \div \frac{m^2n^2}{10p^2} =$ _____ l $\frac{abc}{7} \div \frac{ab}{14} =$ _____

m $\frac{9mn}{2p} \times \frac{8p}{12m} =$ _____ n $\frac{ab^2}{ac} \times \frac{c^2}{a^2} =$ _____ o $\frac{2x}{y} \div \frac{4x}{y^2} =$ _____

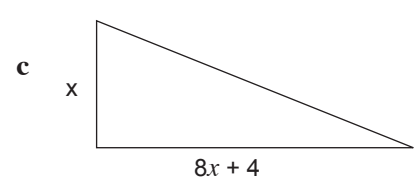
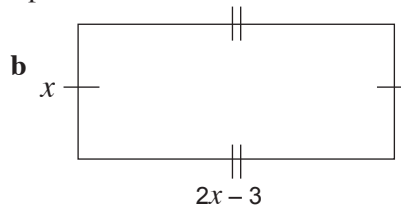
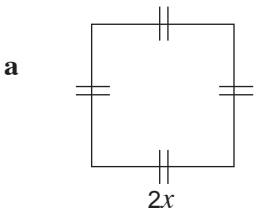
Basic algebra

Topic 9: Problem solving and algebra

- 1 Write the sum of $2x$ and $3y$. _____
- 2 Write the product of m and n . _____
- 3 Write the average of $2x$, y and $3z$. _____
- 4 Find the expression 3 more than $2x$. _____
- 5 If the first number is x , write the next consecutive integer. _____
- 6 Find the area of a square with side length x metres. _____
- 7 Write the perimeter of a rectangle of length 15 cm and width 7 cm. _____
- 8 Find the perimeter of a square with side length 8 cm. _____
- 9 Find the volume of a cube with side length 5 cm. _____
- 10 Find the number x less than $3x + 4y$. _____
- 11 Increase $5x$ by 2. _____
- 12 Write the perimeter of the following shapes.



- 13 Find the area of the following shapes.



- 14 Your pocket money is $\$x$ per week. How much do you earn in 7 weeks? _____
- 15 If I bought p pens and $3q$ pencils and my sister bought $5p$ pens and $2q$ pencils, how many pens and pencils do we have altogether? _____
- 16 Three different types of sweets cost $5y$, $3y$ and $2y$ cents each. If I buy 4 of each type, what would be the total cost? _____

Basic algebra

Topic 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	$8x - 3x - x$ equals	<input type="radio"/> (A) $4x$	<input type="radio"/> (B) $6x$	<input type="radio"/> (C) $8x - 3$	<input type="radio"/> (D) 5	1
2	$a^3 + a^3$ equals	<input type="radio"/> (A) a^6	<input type="radio"/> (B) a^9	<input type="radio"/> (C) $2a^3$	<input type="radio"/> (D) $2a^6$	1
3	$3ab^2$ equals	<input type="radio"/> (A) $3 \times a \times b \times 2$	<input type="radio"/> (B) $3 \times ab \times ab$	<input type="radio"/> (C) $3ab \times 3ab$	<input type="radio"/> (D) $3 \times a \times b \times b$	1
4	$12m^6 \div 4m^3$ equals	<input type="radio"/> (A) $3m^3$	<input type="radio"/> (B) $3m^2$	<input type="radio"/> (C) $8m^3$	<input type="radio"/> (D) $8m^2$	1
5	$2(x - 7) + x$ equals	<input type="radio"/> (A) $3x - 7$	<input type="radio"/> (B) $3x - 14$	<input type="radio"/> (C) $x - 7$	<input type="radio"/> (D) $x - 14$	1
6	The simplest fraction for $\frac{x}{2} + \frac{x}{3}$ is	<input type="radio"/> (A) $\frac{x}{5}$	<input type="radio"/> (B) $\frac{2x}{5}$	<input type="radio"/> (C) $\frac{2x}{6}$	<input type="radio"/> (D) $\frac{5x}{6}$	1
7	$4a^2 \times 5a^4$ equals	<input type="radio"/> (A) $9a^6$	<input type="radio"/> (B) $9a^8$	<input type="radio"/> (C) $20a^6$	<input type="radio"/> (D) $20a^8$	1
8	b is a factor of $ab + bc$. What is the other factor?	<input type="radio"/> (A) a	<input type="radio"/> (B) $a + bc$	<input type="radio"/> (C) ac	<input type="radio"/> (D) $a + c$	1
9	Simplify $\frac{a^6b}{a^2b^2}$	<input type="radio"/> (A) $\frac{a^3}{b}$	<input type="radio"/> (B) $\frac{a^4}{b}$	<input type="radio"/> (C) a^3b	<input type="radio"/> (D) a^4b	1
10	$x(x - 5)$ equals	<input type="radio"/> (A) $x^2 - 5$	<input type="radio"/> (B) $x^2 - 5x$	<input type="radio"/> (C) $-4x$	<input type="radio"/> (D) $-5x^2$	1
11	$k^4 \times (k^8 \div k^2)$ equals	<input type="radio"/> (A) k^{16}	<input type="radio"/> (B) k^{10}	<input type="radio"/> (C) k^8	<input type="radio"/> (D) k^6	1
12	If $a = 4$ and $b = 5$ then $3ab^2$ equals	<input type="radio"/> (A) 120	<input type="radio"/> (B) 300	<input type="radio"/> (C) 1200	<input type="radio"/> (D) 3600	1

Total marks achieved for PART A

12

Basic algebra

Topic 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
Simplify the following. 1 $-5a + 6a + 3a$	_____	1
2 $(3ab)^2$	_____	1
3 $\frac{1}{2}ab \times 32b^2$	_____	1
4 $\frac{a^2}{b} \div \frac{1}{b}$	_____	1
5 Expand and simplify $5a + 3(2 - a)$.	_____	1
6 Simplify $\frac{8}{a} - \frac{3}{a}$	_____	1
7 Expand and simplify $x(2x - 1) - 2(x^2 - x)$.	_____	1
8 Factorise $2p^2q + 4pq^2$.	_____	1
9 Expand and simplify $3(x + 5) + 4(x + 3) - 6(3x - 2)$.	_____	1
10 Expand $(y - 2)(y + 4)$.	_____	1
11 Simplify $\frac{6x + 9}{6}$.	_____	1
12 Simplify $a^2b^3 \times 2(ab)^3 \div 8a^3b^4$.	_____	1
13 Simplify $\frac{5x}{2y} \times \frac{8x}{25y}$.	_____	1
14 Simplify $\frac{a^3b}{3} \div \frac{a}{6b}$.	_____	1
15 Simplify $\frac{3x}{10} - \frac{x}{10} + \frac{7x}{10}$.	_____	1

Total marks achieved for PART B

15