Algebraic representation and formulae – 2021 O Level Math D

1. Nov/2021/Paper_11/No.5

Simplify $3a - a + 2a$.

..... [1]

2. Nov/2021/Paper_11/No.17

(a) Factorise.

$4b^2 - c^2$

..... [1]

(b) Factorise.

$x^2 + 5x - 6$

..... [2]

3. Nov/2021/Paper_12/No.17

Factorise.

$3xy - qy + 6px - 2pq$

..... [2]

4. Nov/2021/Paper_21/No.9

(a) Solve $3x-8=7$.

$x =$ ..... [2]

(b) Solve the inequality $7x < 3(2-x)$.

..... [2]

(c) Solve $\frac{3}{x-2}+\frac{x}{x+5}=1$.

$x =$ ..... [4]

(d) Simplify $\dfrac{2x^2+3x+4xy+6y}{2x^2+11x+12}$.

..... [4]

5. June/2021/Paper_11/No.8

(a) Simplify $6x+15-2x+8$.

..... [1]

(b) Expand and simplify $(x-5)^2$.

..... [2]

6. June/2021/Paper_11/No.14

(a) This is the term-to-term rule for a sequence.

Multiply by 2 and add 3

The first three terms in this sequence are 1, 5 and 13.

Write down the next term in this sequence.

..... [1]

(b) This is the term-to-term rule for a different sequence.

Square and subtract 5

The second and third terms in this sequence are -1 and -4.

(i) Write down the fourth term in this sequence.

..... [1]

(ii) Write down the two possible values for the first term in this sequence.

..... or ..... [2]

7. June/2021/Paper_21/No.3

(a) $p = \dfrac{3q+5}{r^2}$

Calculate p when $q = 15$ and $r = -4$.

$p =$ ..... [2]

(b) Expand and simplify $3(2x+1)+4(x-5)$.

..... [2]

(c) Solve $\dfrac{3-k}{4} = 1$.

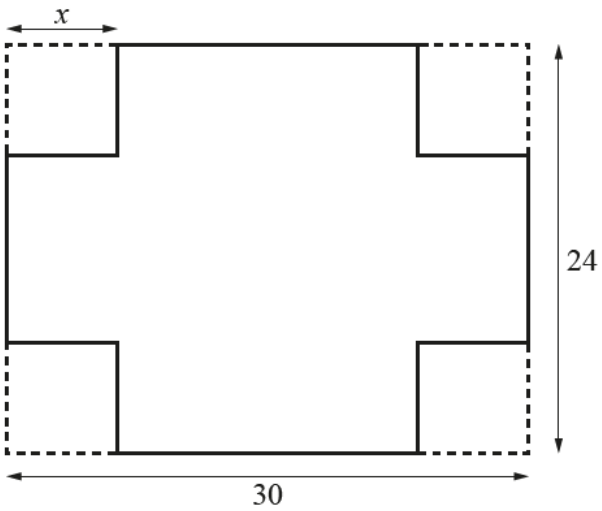
$k =$ ..... [2]

(d) $\dfrac{x^6}{x^m} = x^{-3}$

Find m.

$m =$ ..... [1]

(e)



NOT TO SCALE

A rectangular piece of card measures 30 cm by 24 cm.
The net of an open box is made by removing a square from each corner of this piece of card.
Each square that is removed has side x cm.
The area of the net is 576 cm^2.

(i) Form an equation in x and solve it to find the value of x.

$x =$ ..... [3]

(ii) The net is made into an open box.
1000 cm^3 of sand is placed inside the box.

Find the fraction of the box that is filled with sand.
Give your answer in its simplest form.

..... [3]

8. June/2021/Paper_22/No.3

(a) Simplify $4a - b + 6b - 7a$.

..... [2]

(b) Solve $\frac{m}{2} - 4 = 5$.

$m =$ ..... [2]

(c) Rearrange $u = \frac{t+4}{3}$ to make t the subject.

$t =$ ..... [2]

(d) Expand $3y(2y^2 + 5)$.

..... [2]