

UNIT 11 *Algebraic Manipulation*

Overhead Slides

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OS 11.1

Equations

Complete the solutions of the following equations:

$$\begin{aligned} 1. \quad 4x &= 72 \\ x &= \frac{\square}{\square} \\ &= \square \end{aligned}$$

$$\begin{aligned} 2. \quad x - 8 &= 3 \\ x &= \square \end{aligned}$$

$$\begin{aligned} 3. \quad 4x + 6 &= 26 \\ 4x &= \square \\ x &= \square \end{aligned}$$

$$\begin{aligned} 3. \quad \frac{x}{5} + 7 &= 9 \\ \frac{x}{5} &= \square \\ x &= \square \end{aligned}$$

OS 11.2

*Formulae*A *Temperature conversion*

$$^{\circ}\text{F} = \frac{9}{5} \times ^{\circ}\text{C} + 32$$

What is the temperature in $^{\circ}\text{F}$ if it is 25°C ?

$$\begin{aligned} ^{\circ}\text{F} &= \frac{9}{5} \times \square + 32 \\ &= \square \end{aligned}$$

B *Area of trapezium*

$$A = \frac{1}{2} (a + b) h$$

What is the area of the trapezium if

$a = 3\text{ cm}$, $b = 5\text{ cm}$ and $h = 2\text{ cm}$?

$$\begin{aligned} A &= \frac{1}{2} \times (\square + \square) \times \square \\ &= \square \end{aligned}$$

OS 11.3

Identities

Which of the following are identities, and why?

A
$$\frac{x - y}{2} = \frac{x}{2} - \frac{y}{2}$$

B
$$y = 7x - 8$$

C
$$3(x + y) = 3x + 3y$$

D
$$2x + 6y = 18$$

E
$$x^2 + y^2 = (x + y)^2$$

OS 11.4*Expanding Brackets*

Expand the following:

A $x(x + 6) =$

B $3(x - 7) =$

C $3(4x + 2) =$

D $4(7x - 6) =$

E $2x^2(3x + 4) =$

F $3x^4(4 - 5x) =$

OS 11.5

Expanding Brackets: Box Method

Use the tables to help expand each expression:

A $(x + 8)(x + 5) =$

\times	x	$+8$
x		
$+5$		

B $(2x - 3)(x + 7) =$

\times	$2x$	-3
x		
$+7$		

C $(4x - 3)(x - 8) =$

\times	$4x$	-3
x		
-8		

OS 11.6*Factorising*

Factorise each of the following expressions:

A $2x - 8 =$

B $3x + 15 =$

C $x^2 + 4x =$

D $14x - 21x^2 =$

E $x^2 - x =$

F $35x^2 + 7x^3 =$

OS 11.7*Factorising Quadratics*

Factorise each of the following expressions:

A $x^2 + 6x + 8 = (\quad) (\quad)$

B $x^2 - 5x + 4 = (\quad) (\quad)$

C $x^2 - 6x - 7 = (\quad) (\quad)$

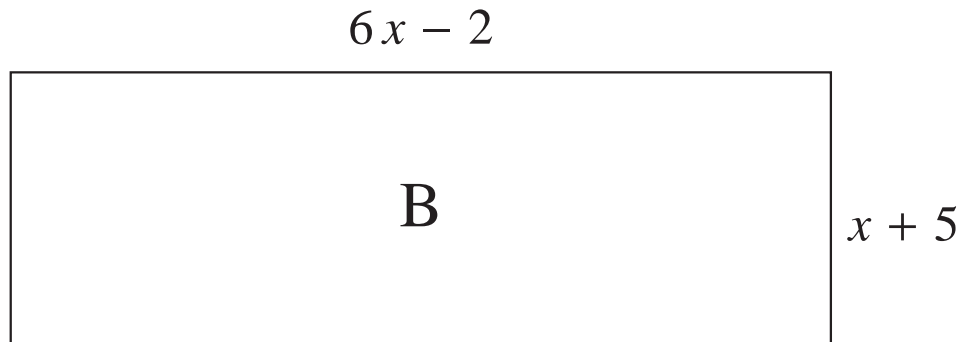
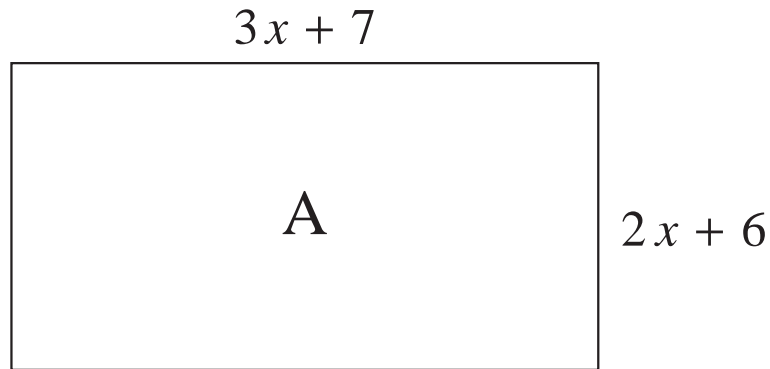
D $x^2 + 20x + 84 = (\quad) (\quad)$

E $x^2 - 16x + 63 = (\quad) (\quad)$

OS 11.8

Using Formulae

Calculate the area and perimeter of each of the rectangles.



Area of A =

=

Area of B =

=

Perimeter of A =

Perimeter of B =
