

### Unit 1 - Polynomials

M	A	T	H	O
24	64	$5rs^2$	$12p-8q$	$-18e+48f$
-13	-1	$3g^3h^2$	$7d^3e-6d^3-1$	$20g^3-12g^2h$
$\frac{5}{12}$	64	/	$-y^2+12y$	$4a+47$
$\frac{6}{5}$	6	15	$14w-2x$	$-27mn-6m+12mn^2-4n^2$
$\frac{37}{8}$	$5ab^3$	3	$-8mn+7n$	$15y^5z^2-28y^3z^2$

$$M5) 3 + \left(-\frac{1}{2}\right) \div \frac{2}{3} + 2\frac{3}{8}$$

$$= 3 + \underbrace{-\frac{1}{2} \cdot \frac{3}{2}} + \frac{19}{8}$$

$$= \frac{3}{1} - \frac{3}{4} + \frac{19}{8} \quad \text{LCM of 1, 4 \& 8 is 8}$$

$$\begin{array}{r} \xrightarrow{\times 8} \quad \xrightarrow{\times 8} \quad \xrightarrow{\times 2} \\ = \frac{24}{8} - \frac{6}{8} + \frac{19}{8} \\ = \frac{37}{8} \end{array}$$

$$A3) 4^{22} \cdot 4^{-19} = 4^{22+(-19)}$$

$$= 4^3$$

$$= 64$$

$$A5) \frac{45a^2b^5}{9ab^2} = 5a^{2-1}b^{5-2}$$

$$= 5ab^3$$

$$A4) \frac{6^{13} \cdot 6^6}{(6^2)^9} = \frac{6^{13+6}}{6^{2 \cdot 9}}$$

$$= \frac{6^{19}}{6^{18}}$$

$$= 6^{19-18}$$

$$= 6^1$$

$$= 6$$

$$(2r^3s)(2r^3s) = 4r^6s^2$$

$$T1) \frac{(2r^6s^2 \times 10r^1s^2)}{(2r^3s)^2} = \frac{20r^7s^4}{2^2(r^3)^2s^2}$$

$$= \frac{20r^7s^4}{4r^6s^2}$$

$$= 5rs^2$$

$$T2) \frac{(3g^2h)^2 \times 4g^3h}{12g^4h} = \frac{3^2(g^2)^2h^2 \cdot 4g^3h}{12g^4h}$$

$$= \frac{9g^4h^2 \cdot 4g^3h}{12g^4h}$$

$$= \frac{36g^7h^3}{12g^4h}$$

$$= 3g^3h^2$$

Comp Test

$$\begin{aligned}
 H2) \quad & \underline{3d^3e} - 6d^3 + \underline{4d^3e} - 1 \\
 & = 7d^3e - 6d^3 - 1
 \end{aligned}$$

Like terms:  
 → same variables  
 with same exponents

$$\begin{aligned}
 H3) \quad & 4y^2 + (-5y^2 + 12y) \\
 & = \underline{4y^2} - \underline{5y^2} + 12y \\
 & = -y^2 + 12y
 \end{aligned}$$

$$\begin{aligned}
 H5) \quad & (-3mn + n) - (5mn - 6n) \\
 & = \underline{-3mn} + n - 5mn + \underline{6n} \\
 & = -8mn + 7n
 \end{aligned}$$

$$02) \quad 4a(5g^2 - 3gh) = 20g^3 - 12g^2h$$

$$\begin{aligned}
 03) \quad & 2(7a + 1) + 5(9 - 2a) \\
 & = \underline{14a} + 2 + 45 - \underline{10a} \\
 & = 4a + 47
 \end{aligned}$$

$$\begin{aligned}
 04) \quad & -3m(9n + 2) + 2n(6mn - 2n) \\
 & = -27mn - 6m + 12mn^2 - 4n^2
 \end{aligned}$$

$$\begin{aligned}
 05) \quad & 3y^2z(5y^3z - 6yz) - 10y^3z^2 \\
 & = 15y^5z^2 - \underline{18y^3z^2} - \underline{10y^3z^2} \\
 & = 15y^5z^2 - 28y^3z^2
 \end{aligned}$$

### Unit 2 - Equations

M	A	T	H	O
-5	-2	$r = \frac{A}{2\pi}$	19	8:27
128	17	$h = \frac{A - \pi r^2}{2\pi r}$	5	x = 198 w = 11
4	3	/	25 ÷ 31	\$0.8/L
9	-12	$h = \frac{3V}{\pi r^2}$	263 ÷ 1578	58% 45% 1500%
-6	9	$t = \pm \sqrt{\frac{2d-6}{a}}$	A: 21 D: 36 W: 39	\$26.24

$$A5) \frac{2b+3}{3} = \frac{10b-6}{12} \quad LCM=12$$

$$12 \left( \frac{2b+3}{3} \right) = 12 \left( \frac{10b-6}{12} \right)$$

$$4(2b+3) = 10b-6$$

$$8b+12 = 10b-6$$

$$8b-10b = -6-12$$

$$-2b = -18$$

$$b = \frac{-18}{-2}$$

$$b = 9$$

$$A3) \frac{z}{5} + \frac{z}{4} = 1\frac{7}{20}$$

$$\frac{z}{5} + \frac{z}{4} = \frac{27}{20} \quad LCM=20$$

$$20 \left( \frac{z}{5} \right) + 20 \left( \frac{z}{4} \right) = 20 \left( \frac{27}{20} \right)$$

$$4z + 5z = 27$$

$$9z = 27$$

$$z = \frac{27}{9}$$

$$z = 3$$

$$A4) \frac{d-4}{2} + 5 = d+9 \quad LCM=2$$

$$2 \left( \frac{d-4}{2} \right) + 2(5) = 2d + 2(9)$$

$$d-4 + 10 = 2d + 18$$

$$d + 6 = 2d + 18$$

$$6-18 = 2d-d$$

$$-12 = d$$

H4) let x be Mrs. Laurier's class' pennies

∴ Mr. M. had 6x pennies

$$x + 6x = 1841$$

$$7x = 1841$$

$$x = \frac{1841}{7}$$

$$x = 263$$

$$∴ 6x = 1578$$

H5) Let x be # of goals Alex scored

∴ Dylan scored (2x-6) goals

& Will scored (2x-6+3) or (2x-3) goals

$$x + 2x-6 + 2x-3 = 96$$

$$5x-9 = 96$$

$$5x = 96+9$$

$$5x = 105$$

$$x = \frac{105}{5}$$

$$x = 21$$

$$A = 21$$

$$D = 36$$

$$W = 39$$

02)  $9:18:w = 99:x:121$

$$\frac{9}{99} = \frac{18}{x} = \frac{w}{121}$$

①  $\cancel{99}x \left( \frac{9}{\cancel{99}} \right) = \left( \frac{18}{\cancel{x}} \right) \times 99$

$$9x = (18)(99)$$

$$x = \frac{(18)(99)}{9}$$


$$x = 198$$

②  $\frac{9}{99} = \frac{w}{121}$

$$\frac{(9)(121)}{99} = w$$

$$w = 11$$

### Unit 3 - Relations

M	A	T	H
Speed	2 m/s	$-\frac{3}{4}$	linear
time		undefined	non-linear
strong, upward	a) P b) d c) p	✓	x values don't increase by same amount
as age increases so does height ⊕ive correlation	partial	$\frac{1}{2}$	$m = 6$
0.85 m	partial	-1	$m = 6$

### Unit 4 - Equation of the Line

M

A

T

H

O

$$y = -3x + 4$$

$$3x - 4y - 4 = 0$$

$$y = 2x - 4$$

$$y = x + 9$$

$$(-1, 2)$$

$$y = \frac{1}{4}x - 3$$

$$y = \frac{5}{3}x + 4$$

$$y = -\frac{1}{3}x + 4$$

$$y = -9x + 22$$

$$(4, 0)$$



$$x = 9$$



$$y = \frac{3}{2}x + 13$$

$$m = \frac{1}{4}$$



$$y = 3$$

$$y = 4x - 39$$

$$y = 3x + 3$$

$$y = x + 10$$

$$6x + y - 1 = 0$$

$$m_{\perp} = \frac{1}{7}$$

$$y = \frac{3}{4}x - 7$$

$$(-1, -2)$$

$$y = 2x + 20$$



T4)  $m=4$   $(9,-3)$

$$y = mx + b$$

$$y = 4x + b$$

$$-3 = 4(9) + b$$

$$-3 = 36 + b$$

$$-3 - 36 = b$$

$$-39 = b$$

$$\therefore y = 4x - 39$$

T5)  $m = \frac{3}{4}$   $(8,-1)$

$$y = \frac{3}{4}x + b$$

$$-1 = \frac{3}{4}(8) + b$$

$$-1 = 6 + b$$

$$-1 - 6 = b$$

$$-7 = b$$

$$\therefore y = \frac{3}{4}x - 7$$

#1) // to  $y = x - 5$   $(-2,7)$

$$m = 1$$

$$\therefore m_{//} = 1$$

$$y = 1x + b$$

$$7 = -2 + b$$

$$7 + 2 = b$$

$$9 = b$$

$$\therefore y = x + 9$$

#3)  $(-8,1)$   $(-6,4)$

$$m = \frac{y_2 - y_1}{x_2 - x_1}$$
$$= \frac{4 - 1}{-6 - (-8)}$$
$$= \frac{3}{2}$$

$$y = \frac{3}{2}x + b$$
$$4 = \frac{3}{2}(-6) + b$$
$$4 = -9 + b$$
$$4 + 9 = b$$
$$13 = b$$

$$\therefore y = \frac{3}{2}x + 13$$

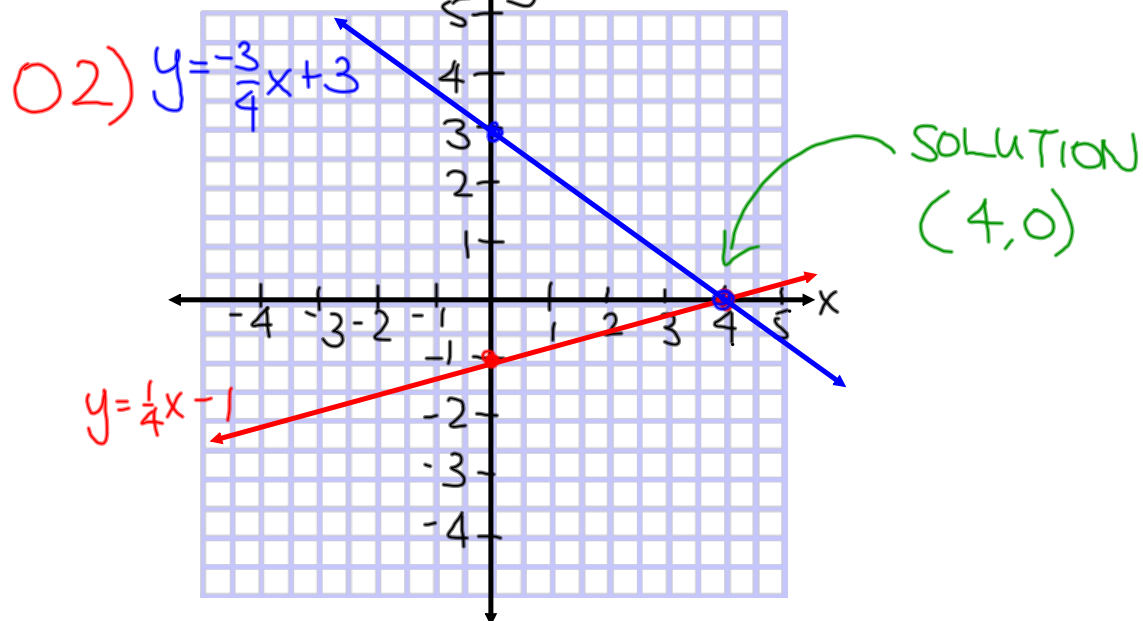
H4)  $(2, 9)$        $x$ -int:  $-1$

$$m = \frac{0 - 9}{-1 - 2}$$
$$= \frac{-9}{-3}$$
$$= 3$$

$\hookrightarrow (-1, 0)$

$$y = 3x + b$$
$$0 = 3(-1) + b$$
$$0 = -3 + b$$
$$3 = b$$

$\therefore y = 3x + 3$



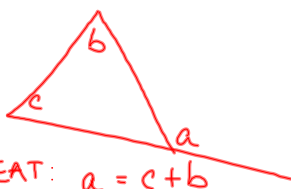
## Unit 5 - Geometry

M	A	T	H	O
$46^\circ$	$25^\circ$	$84^\circ$	$900^\circ$	11 cm
$30^\circ$	$45^\circ$	$80^\circ$	$120^\circ$	18 cm
$45^\circ$	$69^\circ$	/	$103^\circ$	$232 \text{ cm}^2$
$118^\circ$	$11^\circ$	$55^\circ$	$135^\circ$	$100^\circ$
$26^\circ$	$70^\circ$	$25^\circ$	18	38 cm

$$\begin{aligned}
 M3) \quad 2c + 4 &= 3c - 41 \\
 4 + 41 &= 3c - 2c \\
 45 &= c
 \end{aligned}$$

$$\begin{aligned}
 M5) \quad 3e - 15 &= e + 37 \\
 3e - e &= 37 + 15 \\
 2e &= 52 \\
 e &= \frac{52}{2} \\
 e &= 26^\circ
 \end{aligned}$$

$$\begin{aligned}
 A5) \quad 2j - 18 + 2j + 2 + 96 &= 360 \\
 4j &= 360 - 96 - 2 + 18 \\
 4j &= 280 \\
 j &= \frac{280}{4} \\
 j &= 70^\circ
 \end{aligned}$$



$$\begin{aligned}
 T5) \quad 4x - 1 + 4x + 18 + 4x - 7 + 2x &= 360 \\
 14x + 10 &= 360 \\
 14x &= 360 - 10 \\
 14x &= 350 \\
 x &= \frac{350}{14} \\
 x &= 25^\circ
 \end{aligned}$$

$$\begin{aligned}
 T4) \quad \text{C-pattern} \\
 n + 13 + 2n + 2 &= 180 \\
 3n + 15 &= 180 \\
 3n &= 180 - 15 \\
 3n &= 165 \\
 n &= \frac{165}{3} \\
 n &= 55^\circ \quad \leftarrow \begin{aligned} &= \frac{(n-2)(180)}{3} \\ &= 3(180) \end{aligned}
 \end{aligned}$$

$$\begin{aligned}
 H4) \quad \text{sum of 5 angles} &= 540 \\
 3(90) + 2r &= 540 \\
 270 + 2r &= 540 \\
 2r &= 270 \\
 r &= 135^\circ
 \end{aligned}$$



$$\begin{aligned}
 H1) \quad \text{sum} &= (n-2)180^\circ \\
 &= 5(180^\circ) \\
 &= 900^\circ
 \end{aligned}$$

# Unit 6 - Measurement

M	A	T	H	O
13.5 cm	1274 cm <sup>2</sup>	48.5cm	9x	4.08 m
16.1 m	5400 cm <sup>3</sup>	600cm <sup>3</sup>	3.6cm	726 cm <sup>2</sup>
28 cm	21645 m <sup>2</sup>	/	11.35 m	264.4 cm <sup>?</sup>
457.1 cm <sup>2</sup>	1697 cm <sup>3</sup>	3053.6cm <sup>3</sup>	9025m <sup>2</sup>	3217 cm <sup>3 2</sup>
310.8cm <sup>2</sup>	3589 cm <sup>2</sup>	3.3cm	29cm	8.9cm

