

## National 5 Homework

① a)  $2(x^2 - 4)$   
 $= 2(x+2)(x-2)$

b)  $5(x^2 - 9)$   
 $= 5(x+3)(x-3)$

c)  $4(4 - x^2)$   
 $= 4(2+x)(2-x)$

d)  $k(a^2 - 4d^2)$   
 $= k(a+2d)(a-2d)$

e)  $c(25 - c^2)$   
 $= c(5+c)(5-c)$

f)  $2y(y^2 - 16)$   
 $= 2y(y+4)(y-4)$

② a)  $(x+2)(x+1)$

b)  $(y-1)(y-1)$

c)  $(w-7)(w+1)$

d)  $(p+10)(p-2)$

e)  $(m-6)(m-6)$

f)  $(a+6)(a-2)$

③ a) 10 0695

b) 97.333...

c) 3741.91...

d) 190.44

$= 10 \cdot 1(3sf)$

$= 97.3(3sf)$

$= 3740(3sf)$

$= 190(3sf)$

④ a)  $x^3 + 2x^2 - 5x + 6x^2 + 12x - 30$

$= x^3 + 8x^2 + 7x - 30$

b)  $(p^2 - 5p - 14)(p+3)$

$= p^3 - 5p^2 - 14p + 3p^2 - 15p - 42$

$= p^3 - 2p^2 - 29p - 42$

⑤ a)  $2\sqrt{3} \times \sqrt{3}$

$= 6$

b)  $2\sqrt{2} \times 2\sqrt{3}$

$= 4\sqrt{6}$

c)  $\sqrt{20}$

$= 2\sqrt{5}$

d)  $15 \times 2$

$= 30$

e)  $24 \times 3$

$= 72$

f)  $7 \times 5$

$= 35$

g)  $3 - \sqrt{3}$

⑥ a)  $2(x^2 + 2x + 3)$

$= 2((x+1)^2 + 2)$

$= 2(x+1)^2 + 4$

b)  $3(y^2 + 4y + 3)$

$= 3((y+2)^2 - 1)$

$= 3(y+2)^2 - 3$

c)  $5(a^2 - 6a - 5)$

$= 5((a-3)^2 - 14)$

$= 5(a-3)^2 - 70$

⑦

a)  $V = L \times B \times H$

$= 2 \times 1 \times 0.5$

$= 1m^3$

$= 1000L$

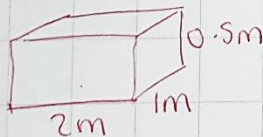
b)  $12.5 \text{ cm}$

$1 \text{ cm}^3 = 1 \text{ ml}$

$1m^3 = 1,000,000 \text{ cm}^3$

$= 1,000,000 \text{ ml}$

$= 1000L$



⑧ a)  $7 + 2x - 10 = 13$

$2x - 3 = 13$

$2x = 16$

$x = 8$

b)  $5 - 3y + 12 = -2$

$17 - 3y = -2$

$19 = 3y$

$y = \frac{19}{3}$

$$c) 5d - 30 = 2d + 6$$

$$3d = 36$$

$$d = 12$$

$$d) k + 8 = 14$$

$$k = 6$$

$$9) a) 6w^6$$

$$b) \frac{5t}{4}$$

$$c) 8k^3$$

$$d) \frac{1}{p^2}$$

$$10) A = \pi r^2$$

$$67 = \pi r^2$$

$$r = \sqrt{\frac{67}{\pi}}$$

$$= 4.62 \text{ cm (3 sf)}$$

$$\text{diameter} = 9.24 \text{ cm (3 sf)}$$

$$C = \pi d$$

$$= \pi \times 9.24$$

$$= 29.0 \text{ cm (3 sf)}$$