

M10 - 5.0 - Q1ab Polynomials Exam Review

1) a) $x + x = 2x$ ✓ $x = 5$ *
 $5 + 5 = 2(5)$
 $10 = 10$

b) $x \cdot x = x^2$ ✓ $x = 4$ * $3 \cdot 3 = 9 = 3^2$
 $4 \cdot 4 = (4)^2$
 $16 = 16$

2a) $(x+2)(x+3)$ FOIL

$$x^2 + 3x + 2x + 6$$

$$x = 3$$

$$\underline{x^2 + 5x + 6} \checkmark$$

$$(x+2)(x+3)$$

$$(3+2)(3+3)$$

$$5 \cdot 6$$

$$30$$

$$x^2 + 5x + 6$$

$$(3)^2 + 5(3) + 6$$

$$9 + 15 + 6$$

$$30$$

b) $(2x-1)(x+2)$

$$2x^2 + 4x - x - 2$$

$$\underline{2x^2 + 3x - 2}$$

$(2x-1)(x+2)$

$$\underline{2x^2 + 3x - 2}$$

c) $2(x+4)(x-1) + 1$

$$2(x^2 + 3x - 4) + 1$$

$$2x^2 + 6x - 8 + 1$$

$$\underline{2x^2 + 6x - 7}$$

$$2d) \cancel{x-2} - 2(x+1)(x-3)$$

$$x-2 - 2(x^2-2x-3)$$

$$\cancel{x-2} - 2x^2 + 4x + 6$$

$$-2x^2 + 5x + 4$$

$$x=3 \star$$

$$e) 3(x+2)^2 - 1$$

$$3(x+2)(x+2) - 1$$

$$3(x^2+4x+4) - 1$$

$$3x^2 + 12x + 12 - 1$$

$$3x^2 + 12x + 11$$

$$(x+2)^2 \neq x^2+4$$

$$(3+2)^2 \neq (3)^2+4$$

$$5^2 \neq 9+4$$

$$25 \neq 13$$

$$f) (x+3)(x^2-2x+8) \quad x^1 \cdot x^2 = x^3$$

$$x^3 - 2x^2 + 8x + 3x^2 - 6x + 24$$

$$x^3 + x^2 + 2x + 24$$

3 a) 15, 12 GCF = $\textcircled{3}$

15	12
^	^
3 5	6 2
	^
	2 3

c) ~~a)~~ $2x, 6x^2$ GCF = $\textcircled{2x}$

b) $6x, 12x$ GCF = $\textcircled{6x}$

d) $2a^2b^3, 3ab^4, 6a^2b^5$ GCF = $\textcircled{1ab^3}$

4a) $2x+4$
 $2(x+2)$ ✓

$x=4$ ←

$2x+4$	$2(x+2)$
$2(4)+4$	$2(4+2)$
12	12

b) $4a^3b^2 + 8a^2b$
 $4a^2b(ab+2)$ ✓

$4a^3b^2 + 8a^2b$

$2(x+2)$
 $2x+4$

c) $-4x+12$
 $-4(x-3)$ ✓

$-4(x-3)$ ✓

$-4x+12$

d) $-8x-4$
 $-4(2x+1)$ ✓

$-4(2x+1)$ ✓

$-8x-4$

e) $2x^2+5x$
 $x(2x+5)$ ✓

f) $10x^3-5x^2$
 $5x^2(2x-1)$ ✓

4 g) $4x^2 + 8x + 6$
 $2(2x^2 + 4x + 3)$

~~$-x - = 6$
 $- + - = 4$~~ $\begin{matrix} 1, 6 \\ 2, 3 \end{matrix}$

h) $x^2 + 5xy + 6y^2$
 $(x + 2y)(x + 3y)$

$x^2 + 5x + 6$
 $(x + 2)(x + 3)$ $\begin{matrix} -x = 6 \\ -+ = 5 \end{matrix}$

i) $(x^2 + 3x)(-2x - 6)$
 $x(x + 3) - 2(x + 3)$
 $(x + 3)(x - 2)$

GROUP
 GCF
 GCF

j) $(x^3 - x^2)(-x + 1)$
 $x^2(x - 1) - 1(x - 1)$
 $(x - 1)(x^2 - 1)$
 $(x - 1)(x + 1)(x - 1)$
 $(x - 1)^2(x + 1)$

k) $x^{1/2} + x^{1/4}$
 $x^{1/4}(x^{1/4} + 1)$

$x^3 + x^2$
 $x^2(x + 1)$

5a) $\frac{2x+1}{2(x+\frac{1}{2})}$ $\frac{1}{2}$

$\frac{2x+4}{2(x+2)}$ $\frac{4}{2} = 2$

b) $\frac{1}{2}x+2$
 $\frac{1}{2}(x+4)$

$2 \div \frac{1}{2} = \frac{2}{1} \times \frac{2}{1} = 4$

c) $\frac{1}{3}x+\frac{1}{2}$
 $\frac{1}{3}(x+\frac{3}{2})$

$\frac{1}{2} \div \frac{1}{3} = \frac{1}{2} \times \frac{3}{1} = \frac{3}{2}$

d) $0.04x+2$
 $0.04(x+50)$

$\frac{2}{0.04} = 2 \div .04$

$2 \div \frac{1}{25}$
~~100~~ 25
 $2 \times 25 = 50$
 1

$$6a) \quad \overset{a}{3}x^2 + \overset{b}{10}x + \overset{c}{5}$$

$$\begin{aligned} a &= 3 \\ b &= 10 \\ c &= 5 \end{aligned}$$

$$b) \quad \overset{a}{1}x^2 - \overset{b}{3}x + \overset{c}{2}$$

$$\begin{aligned} a &= 1 \\ b &= -3 \\ c &= 2 \end{aligned}$$

$$c) \quad \frac{\overset{a}{1}x^2 - \overset{b}{4}x + \overset{c}{0}}{2}$$

$$\begin{aligned} a &= \frac{1}{2} \\ b &= -4 \\ c &= 0 \end{aligned}$$

$$d) \quad \overset{0x^2}{\checkmark} 3x + 5$$

$$\begin{aligned} a &= 0 \\ b &= 3 \\ c &= 5 \end{aligned}$$

$$e) \quad -6 + 7x - 1x^2 \\ -1x^2 + 7x - 6$$

$$\begin{aligned} a &= -1 \\ b &= 7 \\ c &= -6 \end{aligned}$$

7a) $x^2 + 5x + 6$ \checkmark $\frac{2}{2} \times \frac{3}{3} = 6$
 $\frac{2}{2} + \frac{3}{3} = 5$
 $(x+2)(x+3)$

$$x^2 + 3x + 2x + 6$$

b) $6x + x^2 + 8$ $\frac{2}{2} \times \frac{4}{4} = 8$
 $\frac{2}{2} + \frac{4}{4} = 6$
 $(x+2)(x+4)$ \checkmark

$$x^2 + 4x + 2x + 8$$

c) $x^2 + 5x + 8$ ~~$\frac{1}{1} \times \frac{8}{8} = 8$~~ $1, 8$
 ~~$\frac{1}{1} + \frac{8}{8} = 5$~~ $2, 4$
 DOES NOT FACTOR

d) $-4 + x^2 + 3x$ $\frac{-1}{-1} \times \frac{4}{4} = -4$ $1, 4$
 $\frac{-1}{-1} + \frac{4}{4} = 3$ $2, 2$
 $(x-1)(x+4)$ \checkmark

$$x^2 + 4x - x - 4$$

$$7e) \quad x^2 - 3xz - 18z^2$$

$$\begin{array}{l} 3 \times 6 = -18 \\ 3 + -6 = -3 \end{array}$$

$$\begin{array}{l} 1, 18 \\ 2, 9 \\ 6, 3 \end{array}$$

$$(x + 3z)(x - 6z)$$

$$\underline{x^2 - 6xz + 3xz - 18z^2}$$

9a) $2x^2 + 7x + 6$

$\frac{3}{3} \times \frac{4}{4} = 12$ 1, 12
 $\frac{3}{3} + \frac{4}{4} = 7$ 2, 6
 3, 4

$(2x^2 + 4x) + (3x + 6)$
 $2x(x+2) + 3(x+2)$
 $(x+2)(2x+3)$

$2x^2 + 3x + 4x + 6$

$2x^2 + 7x + 6$
 $(2x)(x)$

1, 6
2, 3

b) $2x^2 - 3x - 2$

$\frac{1}{1} \times \frac{4}{4} = -4$ 1, 4
 $\frac{1}{1} + \frac{4}{4} = -3$ 2, 2

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

c) $5x^2 + 12x + 1$

DOES NOT FACTOR.

$\frac{5}{5} \times \frac{1}{1} = 5$ 1, 5
 $\frac{5}{5} + \frac{1}{1} = 6$

d) $3x^2 - 5x - 2$

$\frac{1}{1} \times \frac{6}{6} = -6$ 1, 6
 $\frac{1}{1} + \frac{6}{6} = -5$ 2, 3

$3x^2 + 1x - 6x - 2$
 $x(3x+1) - 2(3x+1)$
 $(3x+1)(x-2)$

a) $x^2 + 4x + 4$ $\underline{2} \times \underline{2} = 4$ $(2+2)(x+2)$
 $(x+2)(x+2)$ $\underline{2} + \underline{2} = 4$ $x^2 + 2x + 2x + 4$
 $(x+2)^2$ ✓

b) $x^2 - 6x + 9$ $\underline{-3} \times \underline{-3} = 9$ $1, 9$
 $(x-3)(x-3)$ $\underline{-3} + \underline{-3} = -6$ $3, 3$
 $(x-3)^2$

c) $9x^2 + 12x + 4$ $\underline{6} \times \underline{6} = 36$ $\sqrt{9} \times \sqrt{4} \times 2$
 $(3x+2)(3x+2)$ $\underline{6} + \underline{6} = 12$ $3 \times 2 \times 2$
 $(3x+2)^2$ 12

d) $4x^2 - 4x + 1$ $\sqrt{4} \cdot \sqrt{1} \times 2 =$
 $(2x-1)(2x-1)$ $2 \cdot 1 \cdot 2 = 4$
 $(2x-1)^2$ ✓ $(2x-1)(2x-1)$
 $4x^2 - 2x - 2x + 1$

e) $4x^2 - 20x + 25$ $\sqrt{4} \cdot \sqrt{25} \cdot 2$
 $(2x-5)(2x-5)$ $2 \cdot 5 \cdot 2$
 $(2x-5)^2$ 20

10a) $x^2 - 25$

$(x+5)(x-5)$

$(x+5)(x-5)$
 $x^2 - 5x + 5x - 25$
 $x^2 - 25$

b) $x^2 - 121$

$(x+11)(x-11)$

g) $16x^2 - 25$

$(4x-5)(4x+5)$

c) $x^2 + 1$

DOES NOT FACTOR.

h) $a^2 - b^2$

$(a-b)(a+b)$

d) $1 - x^2$

$(1-x)(1+x)$

i) $4x^2 - 9y^2$

$(2x+3y)(2x-3y)$

e) $-x^2 + 49$

$49 - x^2$

$(7-x)(7+x)$

j) $x^2 - 2$

$(x+\sqrt{2})(x-\sqrt{2})$

$-(x^2 - 49)$

$-(x+7)(x-7)$

k) $x^4 - 81$

$(x^2+9)(x^2-9)$

$(x^2+9)(x+3)(x-3)$

f) $9x^2 - 1$

$(3x+1)(3x-1)$

$x^6 - 144$

$(x^3+12)(x^3-12)$

$$\begin{aligned} \text{1) a) } & 3x^2 + 15x + 18 \\ & 3(x^2 + 5x + 6) \\ & \underline{3(x+2)(x+3)} \end{aligned}$$

$$\begin{aligned} \text{b) } & 2x^3 - 4x^2 - 30x \\ & 2x(x^2 - 2x - 15) \quad \begin{array}{l} -5 \times 3 = -15 \\ -5 + 3 = -2 \end{array} \\ & \underline{2x(x-5)(x+3)} \end{aligned}$$

$$\begin{aligned} \text{c) } & -x^2 - 5x + 14 \\ & -(x^2 + 5x - 14) \quad \begin{array}{l} 7 \times -2 = -14 \\ 7 + -2 = 5 \end{array} \\ & \underline{-(x+7)(x-2)} \end{aligned}$$

$$\begin{aligned} \text{d) } & 27x^2 - 48 \\ & 3(9x^2 - 16) \\ & \underline{3(3x+4)(3x-4)} \end{aligned}$$

$$12a) \quad x^2 + \frac{2}{3}x + \frac{1}{9}$$

$$\left(x + \frac{1}{3}\right)\left(x + \frac{1}{3}\right)$$

$$\left(x + \frac{1}{3}\right)^2$$

$$\frac{1}{3} \times \frac{1}{3} = \frac{1}{9} \quad \begin{matrix} \times 1 \\ 1, 9 \end{matrix}$$

$$\frac{1}{3} + \frac{1}{3} = \frac{2}{3} \quad \begin{matrix} \times 1 \\ 1, 9 \end{matrix}$$

$$x^2 + \frac{2}{3}x + \frac{1}{9}$$

$$\frac{1}{9}(9x^2 + 6x + 1)$$

$$\frac{1}{9}(3x + 1)(3x + 1)$$

$$\sqrt{9} \cdot \sqrt{1} \cdot 2 = 3 \cdot 1 \cdot 2 = 6$$

$$\frac{1}{9} \times \frac{1 \cdot 2}{3} = \frac{2}{3}$$

$$\frac{18}{3} = 6$$

12b) $\frac{1}{6}x^2 - 2x - 18$ $2x+4$ $\frac{4}{2} = 2$
 $\frac{1}{6}(x^2 - 12x - 108)$ $2(x+2)$
 $\frac{-2 \div \frac{1}{6} = -2 \times 6 = -12$

$\frac{-18 \div \frac{1}{6} = -18 \times 6 = -108$

$\frac{1}{6}(x+6)(x-18)$ $6 \times 18 = -108$ $1, 108$
 $6 + 18 = -12$ $2, 54$
 $3, 36$
 $4, 27$
 $6, 18$

c) $t^2 + 0.2t - 0.15$ $5 \times -3 = -0.15$
 $(t+0.5)(t-0.3)$ $5 \times 3 = 0.2$ $6, 18$

$t^2 + \frac{1}{5}t - \frac{3}{20}$ $\frac{1}{2} \times \frac{-3}{10} = \frac{-3}{20}$
 $(t + \frac{1}{2})(t - \frac{3}{10})$ $\frac{1}{2} + \frac{-3}{10} = \frac{1}{5}$

$5 \times \frac{1}{2} + \frac{-3}{10} = \frac{5}{10} + \frac{-3}{10} = \frac{2}{10} = \frac{1}{5}$

$$12d) 0,02x^2 + 0,05x - 0,03$$

$$0,02(x^2 + \frac{5}{2}x - \frac{3}{2})$$

$$0,02(x+3)(x-\frac{1}{2})$$

$$\frac{0,05}{0,02} = 2,5 \quad 2\frac{1}{2} = \frac{5}{2}$$

$$\frac{-0,03}{0,02} = -1,5 = -1\frac{1}{2} = -\frac{3}{2}$$

$$+3 \times -\frac{1}{2} = -\frac{3}{2}$$

$$+3 + -\frac{1}{2} = \frac{5}{2}$$

$$\frac{2x-3}{2} \times \frac{-1}{2} = \frac{+6-1}{2} = \frac{+5}{2}$$

$$e) \frac{1}{25}a^2 - \frac{1}{36}$$

$$\left(\frac{1}{5}a + \frac{1}{6}\right)\left(\frac{1}{5}a - \frac{1}{6}\right)$$

$$f) 0,25x^2 - 1$$

$$\frac{25}{100} \frac{1}{4} x^2 - 1$$

$$\left(\frac{1}{2}x + 1\right)\left(\frac{1}{2}x - 1\right)$$

13a) $(x+1)^2 - (x+1) - 12$

let $m = x+1$

$$m^2 - m - 12$$

$$(m-4)(m+3)$$

$$(\cancel{x+1}-4)(\cancel{x+1}+3)$$

$$(x-3)(x+4)$$

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

let $m = x+3$

$$2m^2 + 3m - 9$$

$$(2m-3)(m+3)$$

$$2m^2 + 6m - 3m - 9$$

1, 9 (3, 3)

c) $(x+1)^2 - 4$

let $m = x+1$

$$m^2 - 4$$

$$(m+2)(m-2)$$

$$(x+1+2)(x+1-2)$$

$$(x+3)(x-1)$$

$$(3d) \quad 9 - (x-2)^2 \quad \text{let } m = x-2$$

$$\begin{aligned} & 9 - m^2 \\ & (3+m)(3-m) \\ & (3 + \cancel{x-2})(3 - \cancel{(x-2)}) \\ & (x+1)(3-x+2) \\ & (x+2)(5-x) \end{aligned}$$

$$e) \quad (x+2)^2 - (x-3)^2$$

$$\begin{aligned} & m^2 - n^2 \\ & (m+n)(m-n) \\ & (x+2+x-3)(x+2-(x-3)) \\ & (2x-1)(x+2-x+3) \\ & (2x-1)(5) \\ & 5(2x-1) \end{aligned}$$

$$\begin{aligned} & \text{let } m = x+2 \\ & \text{" } n = x-3 \end{aligned}$$

$$(3f) \quad (x^2 + 6x + 9) - y^2$$

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

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

$$m^2 - y^2$$

$$(m+y)(m-y)$$

$$(x+3+y)(x+3-y)$$

$$m = x+3$$

14a) $x^2 + kx - 10$ $\underline{\quad}x \underline{\quad} = -10$ $1x - 10$ $1 + -10 = -9$
 $\underline{\quad} + \underline{\quad} = k$ $10x - 1$ $10 + -1 = 9$
 ($k = \pm 9, \text{ or } \pm 3$) \checkmark $2x - 5$ $2 + -5 = -3$
 $5x - 2$ $5 + -2 = 3$

$x^2 + 9x - 10$ $\underline{10}x \underline{-1} = -10$
 $(x+10)(x-1)$ $\underline{10} + \underline{-1} = +9$

b) $3x^2 + kx - 10$ $\underline{\quad}x \underline{\quad} = -30$ $1, 30$ $k = \pm 29$
 $\underline{\quad} + \underline{\quad} = k$ $2, 15$ ± 13
 $3, 10$ ± 7
 $5, 6$ ± 1

c) $x^2 + bx + k$ $\underline{\quad}x \underline{\quad} = k$ $1, 7$ $k = 7$
 $\underline{\quad} + \underline{\quad} = b$ $2, 6$ 12
 $3, 5$ 15
 $4, 4$ 16

$$14d) \begin{array}{l} kx^2 + 3x + 2 \\ 1x^2 + 3x + 2 \\ \hline (x+2)(x+1) \end{array} \quad \begin{array}{l} \frac{1}{1} \times \frac{2}{2} = 2k \\ \frac{1}{1} + \frac{2}{2} = 3 \end{array} \quad \begin{array}{l} 1 \cdot 2 = 2 \\ k=1 \end{array}$$

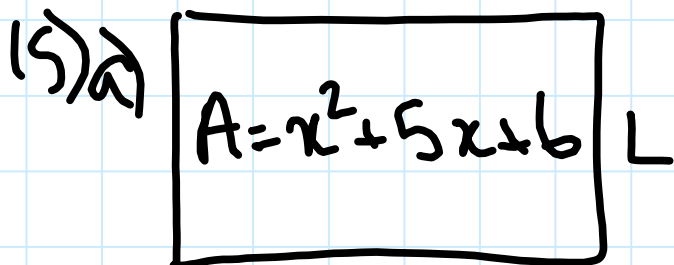
$$e) x^2 - k \quad \begin{array}{l} 1^2 = 1 \quad 3^2 = 9 \\ 2^2 = 4 \quad 4^2 = 16 \end{array}$$

$$k = 1, 4, 9, 16, 25, \dots$$

$$f) \begin{array}{l} 2x^2 - 9x + k \\ (2x - 1)(x - 4) \end{array}$$

$$2x^2 - 8x + \underline{-1}x + \underline{-4}$$

$$2x^2 - 9x + 4 \leftarrow k=4$$

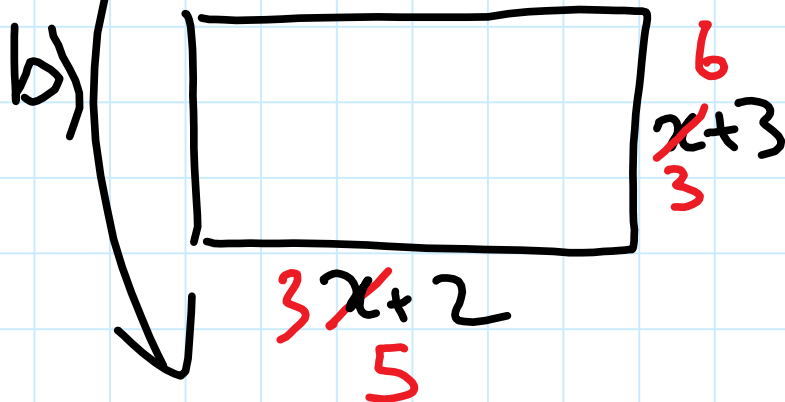


$$A = l \cdot w$$

$$A = x^2 + 5x + 6$$

$$A = (x+2)(x+3)$$

$$L = x + 3$$



$$A = l \cdot w$$

$$A = 5 \cdot 6$$

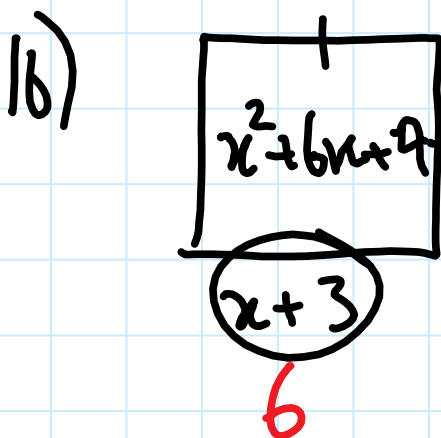
$$A = 30 \text{ cm}^2$$

$$w = 5 \text{ cm}$$

$$L = 6 \text{ cm}$$

$$A = (3)^2 + 5(3) + 6$$

$$A = 30 \text{ cm}^2$$



$$A = x^2 + 6x + 9$$

$$(x+3)(x+3)$$

$$(x+3)^2$$

$$A = l \cdot w$$

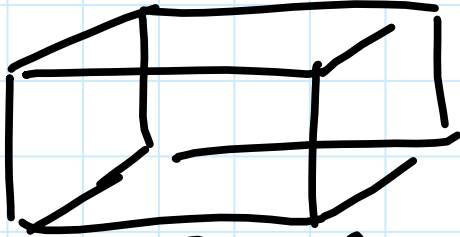
$$A = 6^2$$

$$A = l \cdot w$$

$$A = 6 \cdot 6 \text{ m}^2$$

$$A = 36 \text{ m}^2$$

(7)



$$V = 3x^3 + x^2 - 10x$$

$$x(3x^2 + x - 10)$$

$$x(3x - 5)(x + 2)$$

1, 10
2, 5

$$L = x, W = 3x - 5, h = x + 2$$

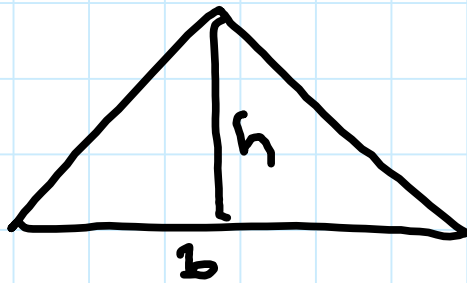
$$L = 4, W = 5, h = 6$$

$$V = 4 \cdot 5 \cdot 6$$

$$V = 120 \text{ in}^3$$

$$L = 4 \text{ in}, W = 5 \text{ in}, h = 6 \text{ in}$$

18)



$$A = \frac{bh}{2}$$

$$\left(\frac{1}{2}x^2 - 2 = \frac{bh}{2} \right) \times 2$$

$$\rightarrow A = \frac{1}{2}x^2 - 2 \text{ m}^2$$

$$x^2 - 4 = bh$$

$$(x+2)(x-2) = bh$$

$$A = \frac{bh}{2}$$

$$b = x + 2$$

$$h = x - 2$$

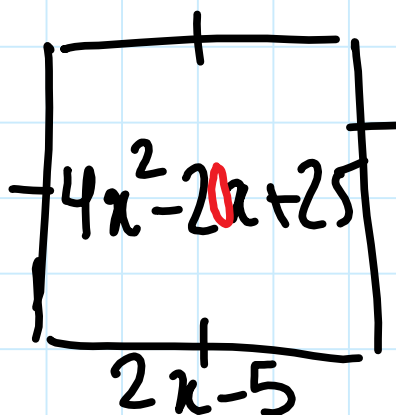
$$A = \frac{5 \cdot 1}{2}$$

$$b = 5 \text{ m}$$

$$h = 1 \text{ m}$$

$$A = 2.5 \text{ m}^2$$

19)



$$A = s^2$$

$$4x^2 - 20x + 25$$

$$(2x - 5)(2x - 5)$$

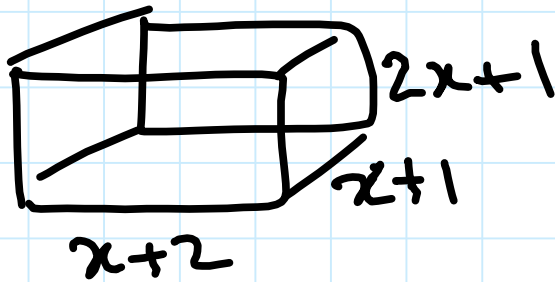
$$\sqrt{4} \cdot \sqrt{25} \cdot 2$$

$$20$$

$$P = (2x - 5)4$$

$$P = 8x - 20$$

20)



SA/V

$$V = lwh$$

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

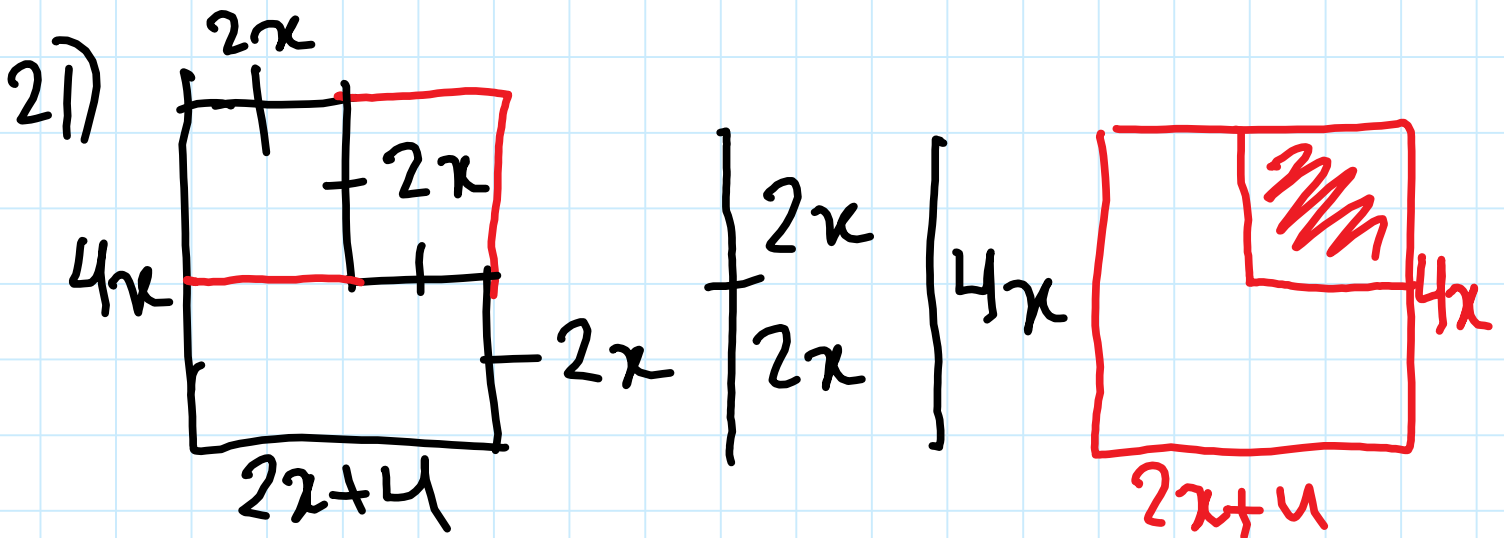
$$V = (x^2 + 3x + 2)(2x+1)$$

$$V = 2x^3 + x^2 + 6x^2 + 3x + 4x + 2$$

$$V = 2x^3 + 7x^2 + 7x + 2$$

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

●●●●



$$P = 4x + 2x + 2x + 2x + 2x + 2x + 4$$

$$P = 14x + 4 \text{ cm}$$

$$A = lw$$

$$A = 2x \cdot 2x$$

$$A = 4x^2$$

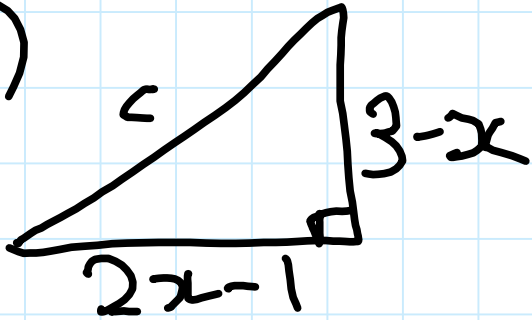
$$A = lw$$

$$A = 2x(2x + 4)$$

$$A = 4x^2 + 8x$$

$$A_T = 8x^2 + 8x \text{ cm}^2$$

22)



$$a^2 + b^2 = c^2$$

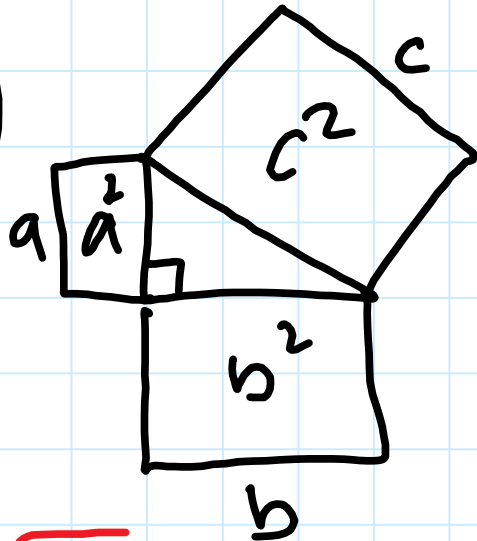
$$(2x-1)^2 + (3-x)^2 = c^2$$

$$4x^2 - 4x + 1 + 4 - 6x + x^2 = c^2$$

$$\sqrt{5x^2 - 10x + 10} = c$$

$$c = \sqrt{5x^2 - 10x + 10}$$

23)

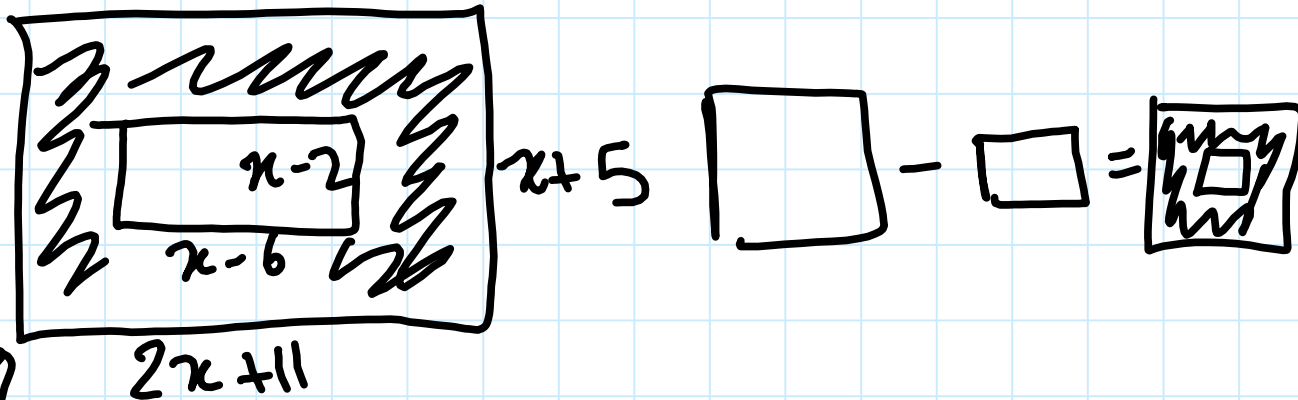


$$c^2 = x^2 + 4x + 4$$

$$\begin{aligned} \sqrt{b^2} &= \sqrt{x^2 + 2x + 1} \\ b &= \sqrt{x^2 + 2x + 1} \\ b &= \sqrt{(x+1)(x+1)} \\ b &= \sqrt{(x+1)^2} \\ b &= x+1 \end{aligned}$$

$$\begin{aligned} a^2 + b^2 &= c^2 \\ a^2 - b^2 &= c^2 - b^2 \\ a^2 &= c^2 - b^2 \\ a^2 &= x^2 + 4x + 4 - (x^2 + 2x + 1) \\ a^2 &= x^2 + 4x + 4 - x^2 - 2x - 1 \\ a^2 &= 2x + 3 \end{aligned}$$

24)



$$A = lw$$

$$A = (2x+11)(x+5) \quad A = (x-6)(x-2)$$

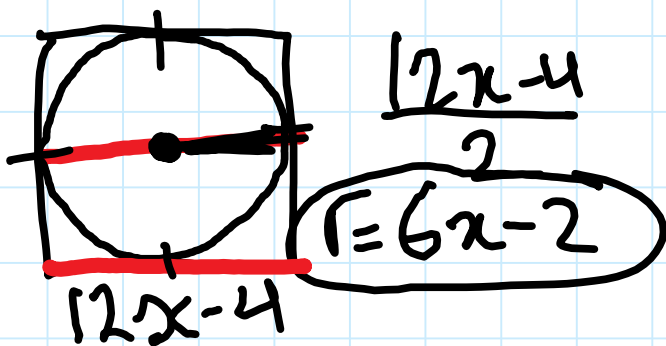
$$A = 2x^2 + 21x + 55 \quad A = x^2 - 8x + 12$$

$$A_s = 2x^2 + 21x + 55 - (x^2 - 8x + 12)$$

$$A_s = \quad \quad \quad -x^2 + 29x + 43$$

$$A_s = x^2 + 29x + 43$$

25)



$$\frac{12x - 4}{4(x - 3)}$$

$$C = 2\pi r$$

$$C = 2\pi(6x - 2)$$

$$C = 12x\pi - 4\pi$$

$$C = 2\pi \cdot 2(3x - 1)$$

$$C = 4\pi(3x - 1)$$

$$A = \pi r^2$$

$$A = \pi(6x - 2)^2(6x - 2)$$

$$A = \pi(36x^2 - 24x + 4)$$

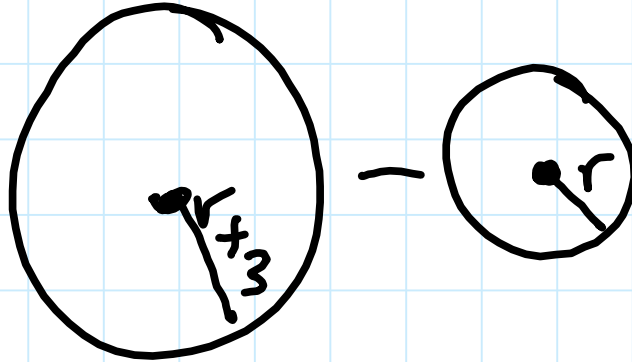
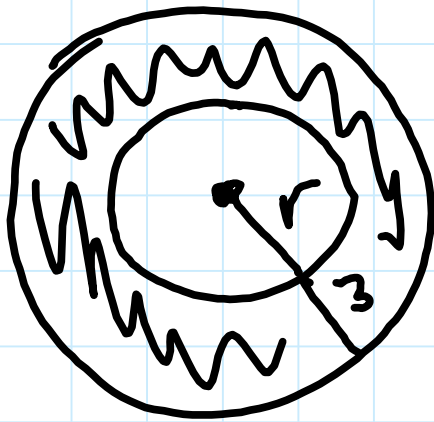
$$A = 4\pi(9x^2 - 6x + 1)$$

$$A = 4\pi(3x - 1)(3x - 1)$$

$$A = 4\pi(3x - 1)^2$$

$$\sqrt{9} \cdot \sqrt{1} \cdot 2 = 3 \cdot 1 \cdot 2 = 6$$

26)



$$A = \pi r^2$$

$$A = \pi (r+3)(r+3)$$

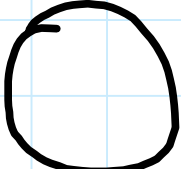
$$A = \pi (r^2 + 6r + 9)$$

$$A = \pi r^2 + 6\pi r + 9\pi$$

$$A = \pi r^2$$

$$A_S = \pi r^2 + 6\pi r + 9\pi - \cancel{\pi r^2}$$

$$A_S = 6\pi r + 9\pi$$

27)  $A = 9\pi x^2 + 36\pi x + 36\pi$

$A = \pi r^2$

$C = 2\pi r$

$A = \pi r^2$

$A = 9\pi(x^2 + 4x + 4)$

$A = 9\pi(\underline{x+2})^2(\underline{x+2})$

$r = \frac{9(x+2)^2}{(3(x+2))^2}$

$A = \pi r^2$

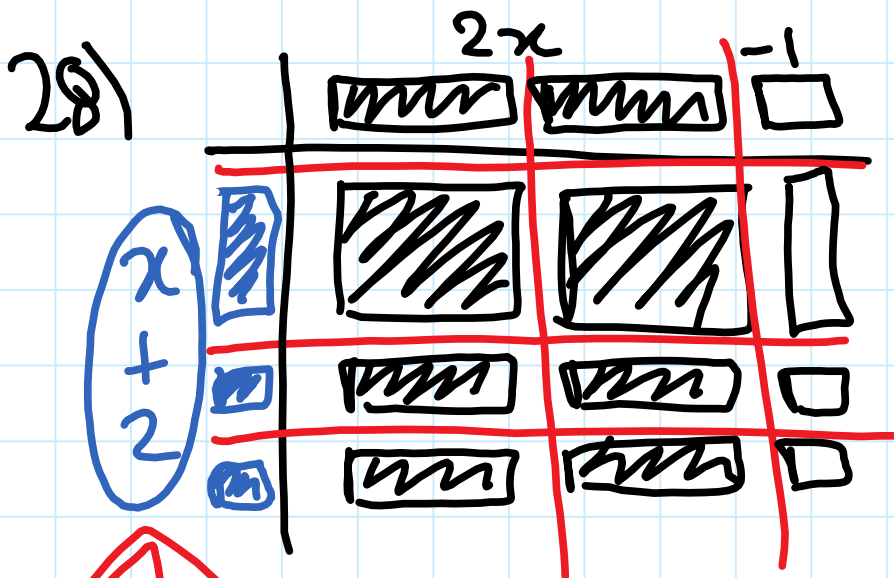
$A = \pi(3(x+2))^2$

$A = \pi 9(x+2)^2$

$C = 2\pi r$

$C = 2\pi(3(x+2))^2$

$C = 18\pi(x+2)^2$



$x+2$

$$2x^2 + 4x - 1x - 2$$

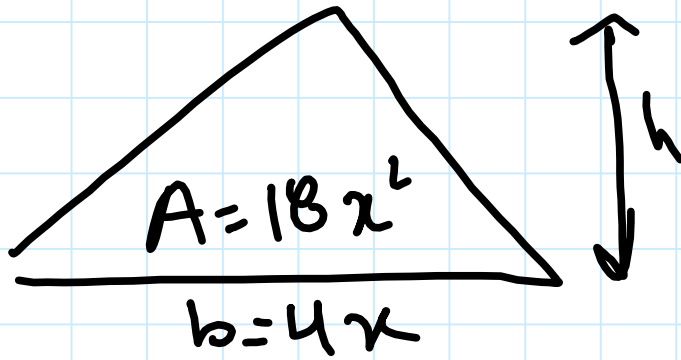
$$2x^2 + 3x - 2$$

$$(2x-1)(x+2) \quad \checkmark$$

$$2x^2 + 4x - x - 2$$

$x+2$

2a)



$$A = \frac{bh}{2}$$

$$2 \times 18x^2 = \frac{4x \cdot h}{2} \rightarrow \frac{18x^2}{2x} = \frac{2xh}{2x}$$

$$\frac{36x^2}{4x} = \frac{4xh}{4x}$$

$$h = 9x \quad \checkmark$$

$$h = 9x \quad \checkmark$$

$$A = \frac{bh}{2}$$

$$A = \frac{4x \cdot 9x}{2}$$

$$A = 18x^2$$

30)

$$\begin{array}{|l} A = 2x^2 + x \\ \hline L = x \end{array} \quad W$$

$$\begin{aligned} A &= LW \\ 2x^2 + x &= xW \\ \underline{x(2x+1)} &= \underline{xW} \end{aligned}$$

$$W = 2x + 1$$

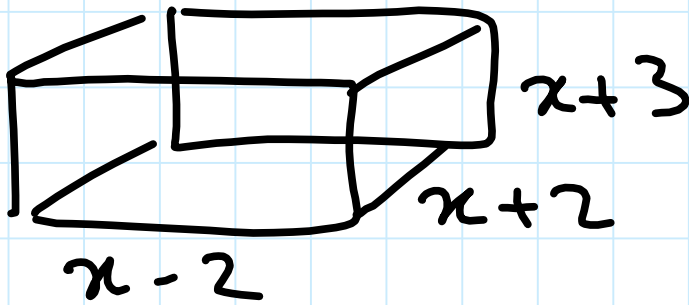
$$\begin{aligned} A &= LW \\ A &= x(2x+1) \\ A &= 2x^2 + x \end{aligned}$$

$$\begin{aligned} A &= LW \\ \frac{A}{L} &= \frac{LW}{L} \\ W &= \frac{A}{L} \\ W &= \frac{2x^2 + x}{x} \end{aligned}$$

$$W = \frac{2x^2}{x} + \frac{x}{x}$$

$$W = 2x + 1$$

3/a)



$$V = lwh$$

$$V = (x-2)(x+2)(x+3)$$

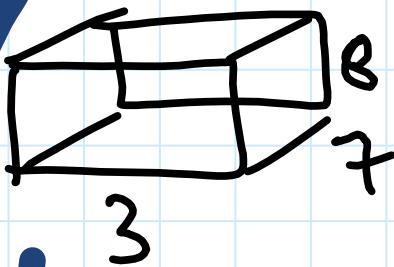
$$V = (x^2 - 2x + 2x - 4)(x+3)$$

$$V = (x^2 - 4)(x+3)$$

$$V = x^3 + 3x^2 - 4x + 12 \text{ cm}^3$$

$x = 5 \text{ cm}$

b)



$$V = lwh$$

$$V = 3 \cdot 7 \cdot 8$$

$$V = 168 \text{ cm}^3$$

$$V = (5)^3 + 3(5)^2 - 4(5) + 12$$

$$V = 125 + 15 - 20 + 12 = 132$$

$$V = x^3 + 3x^2 - 4x + 12$$

168

32a)

$$A = 2x^2 - 5x - 12 \quad L = 2x + 3$$

$$x - 4$$

$$2x^2 - 5x - 12$$

$$(2x + 3)(x - 4)$$

$$L = 2x + 3 \quad \checkmark$$

$$A = lw$$

$$A = (2x + 3)(x - 4)$$

$$2x^2 - 5x - 12$$

b) $x = 9\text{m}$

$$A = 105\text{m}^2$$

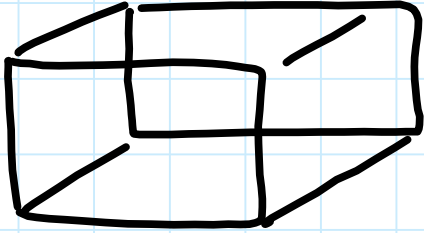
5

$$A = 2x^2 - 5x - 12$$

$$2(9)^2 - 5(9) - 12$$

$$A = 105\text{m}^2$$

33)



$$V = x^3 + 5x^2 + 6x$$

$$V = x(x^2 + 5x + 6)$$

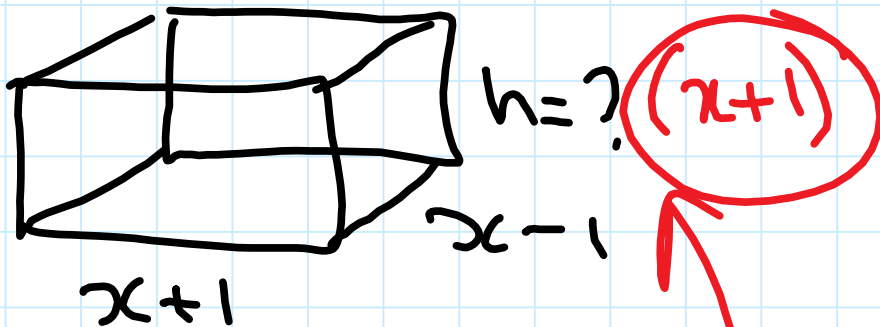
$$V = x(x+2)(x+3)$$

$$V = lwh$$

$$l = x \quad w = x + 2 \quad h = x + 3 \quad \checkmark$$

$$V = x^3 + 5x^2 + 6x$$

34a)



$$V = (x^3 + x^2) - x - 1$$

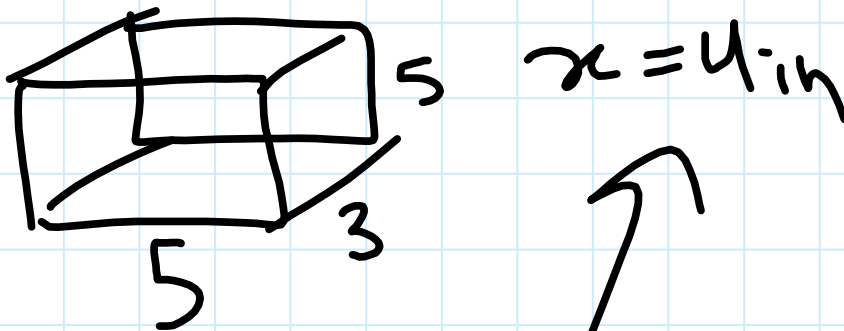
$$V = x^2(x+1) - 1(x+1)$$

$$\frac{(x+1)(x^2-1)}{(x+1)(x-1)(x+1)}$$

1
2
3

$V = lwh$

b)



$$V = lwh$$

$$V = 5 \cdot 5 \cdot 3$$

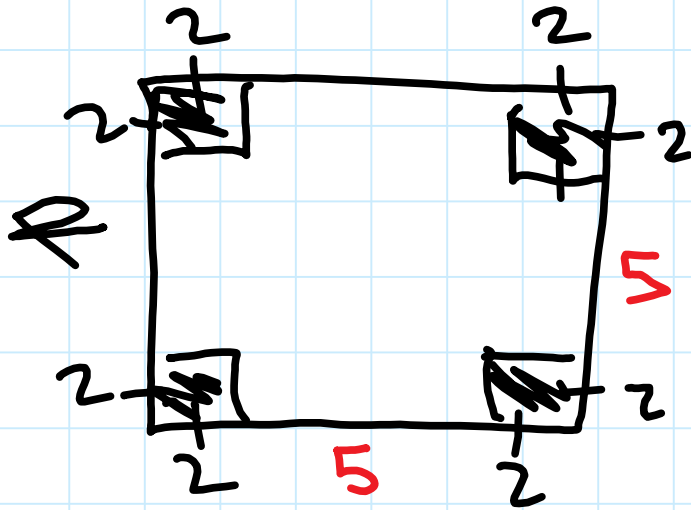
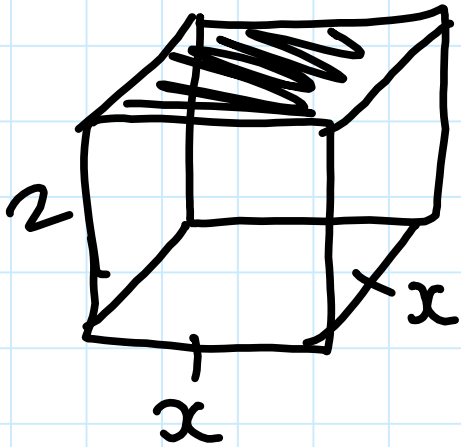
$$V = 75 \text{ in}^3$$

M10 - 5.0 - Q Polynomials Exam Review

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35)



$$V = lwh$$

$$V = x \cdot x \cdot 2$$

$$50 = x \cdot x \cdot 2$$

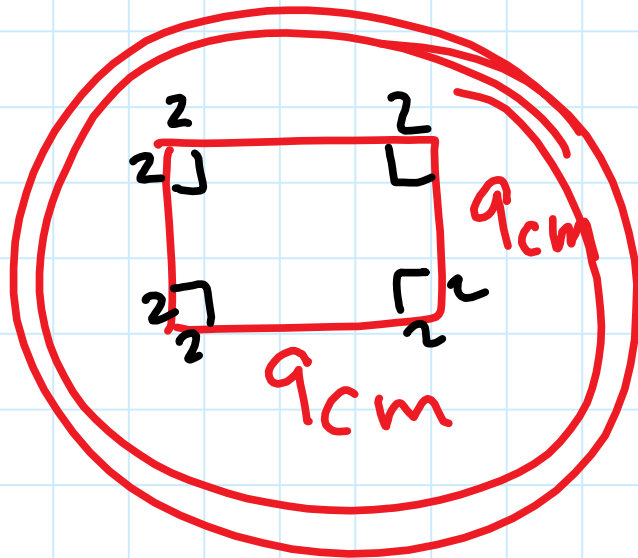
$$\frac{50}{2} = \frac{2x^2}{2}$$

$$\sqrt{x^2} = \sqrt{25}$$

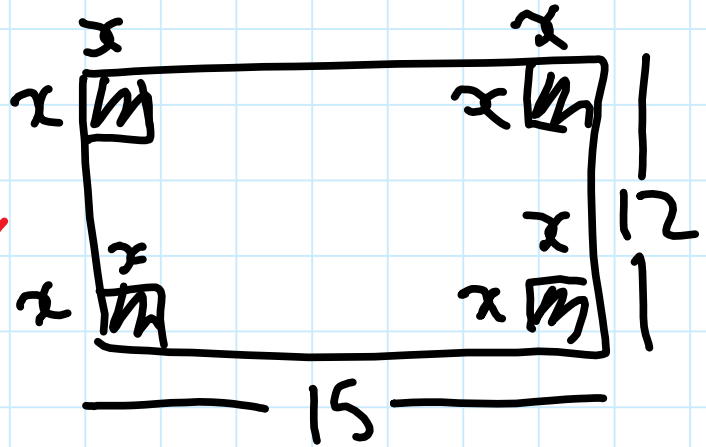
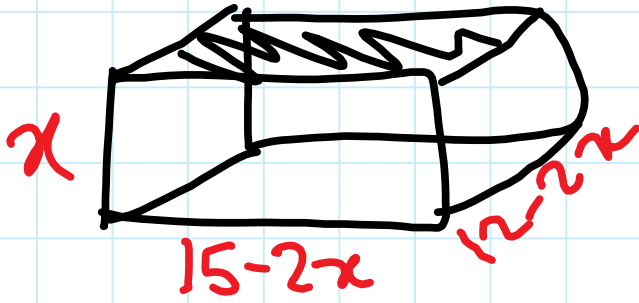
$$x = \pm 5$$

$$x = 5$$

$$V = 50 \text{ cm}^3$$



36)



let $x = L$ cut.

$$W = 15 - 2x \quad L = 12 - 2x \quad h = x$$