

12:00pm
01/11/2021
ACHA3000
2102864

Exo 1

1)

i) x^{17}

ii) $48x^{11} - 16x^8$

iii) x^{10}

iv) $x^{\frac{5}{6}}$

v) $\frac{1}{x} x^0$

2)

i) $7x - 1 - 5x + 4$

$7x - 5x = 1 + 4$

$2x = 5$

$x = 2.5$

ii) $10(3x + 2) = 7(-2x - 1)$

$30x + 20 = -14x - 7$

$30x + 14x = -20 - 7$

$44x = -27$

$x = \frac{-27}{44}$

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$$\text{ii) } \frac{3}{(2x+1)} - \frac{4}{(x-1)}$$

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

$$3x - 3 = 8x + 4$$

$$-3 - 4 = 8x - 3x$$

$$-7 = 5x$$

$$x = -\frac{7}{5}$$

$$\text{iv) } (x+2)^2 = (x+3)(x+5)$$

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

$$x^2 + 2x + 2x + 4 = x^2 + 5x + 3x + 15$$

$$4x + 4 = 8x + 15$$

$$-15 + 4 = 8x - 4x$$

$$-11 = 4x$$

$$x = -\frac{11}{4}$$

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3)

i) $x^2 + 9x + 14 = 0$

$$(x+2)(x+7)$$

$$x^2 + 7x + 2x + 14$$

$$x^2 + 9x + 14 = 0$$

$$x+2=0 \quad x+7=0$$

$$x=-2 \quad x=-7$$

ii) $x^2 - 7x + 10 = 0$

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

$$x^2 - 5x - 2x + 10 = 0$$

$$x^2 - 7x + 10 = 0$$

$$x-2=0 \quad x-5=0$$

$$x=2 \quad x=5$$

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iiii)

$$x^2 - 49 = 0$$

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

$$x^2 - 49 = 0$$

$$x^2 - 49 = 0$$

$$x-7=0 \quad x-7=0$$

$$x=7 \quad x=7$$

iii)

$$x^2 + 8x - 20 = 0$$

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

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

$$x^2 - 10x + 2x - 20 = 0$$

$$x^2 - 8x - 20 = 0$$

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iii) continued

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

$$x^2 - 2x + 10x - 20$$

$$x^2 + 8x - 20 = 0$$

$$x - 2 = 0 \quad x + 10 = 0$$

$$x = 2 \quad x = -10$$

$$V) \quad 2x^2 - 3x - 20 = 0$$

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

$$2x^2 - 10x$$

$$(2x+4)(x-5)$$

$$(2x+5)(x-4)$$

$$2x^2$$

$$2x^2 - 8x + 5x - 20 = 0$$

$$2x^2 - 3x - 20 = 0$$

$$2x + 5 = 0 \quad x - 4 = 0$$

$$2x = -5 \quad x = 4$$

$$x = -2.5$$

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4)

$$x = \frac{-(-5) \pm \sqrt{(-5)^2 - 4(17)(14)}}{2(17)}$$

$$x = \frac{5 \pm \sqrt{25 - 952}}{34}$$

$$x = \frac{5 \pm \sqrt{-927}}{34}$$

4) ~~23~~ ~~-B~~

$$17x^2 = -5x + 14 = 0$$

$$17x^2 + 5x - 14 = 0$$

$$x = \frac{-5 \pm \sqrt{5^2 - 4(17)(-14)}}{2(17)}$$

$$x = \frac{-5 \pm \sqrt{25 - (-952)}}{34}$$

$$x = \frac{-5 \pm \sqrt{977}}{34}$$

$$x = \frac{-5 \pm \sqrt{977}}{34}$$

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$$x = \frac{-5 \pm \sqrt{977}}{34}$$

$$x = 0.17 \quad x = -1.06$$

$$5) 6x + 54 = 35 \quad ①$$

$$5x + 7x - 44 = 31 \quad ②$$

$$24x + 204 = 140 \quad ③$$

$$35x - 204 = 155 \quad ④$$

$$115x = 15$$

$$x = 11$$

$$59x = 295$$

$$x = 5$$

④ - ③

④ + ③

③ + ④

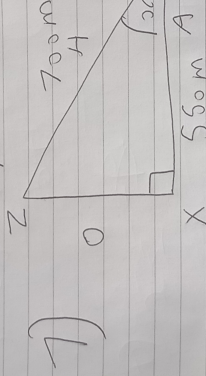
[8]

6) i) $10p^3q^2 - 5p^2q + 15p^4q$

$5p^2q(2pq - 1 + 3p^3)$

ii) $2x^2y - 4xy^2$

$2xy(x - 2y)$



Sohkah 600

i) $\frac{400-550}{\sqrt{700^2 - 550^2}}$

$= 433 \text{ metres}$

ii) $\cos \alpha = \frac{550}{700}$

$\alpha = \cos^{-1}\left(\frac{11}{14}\right)$

$38.21^\circ \text{ degrees}$