



10/8

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~~2/2~~

i) $x^4 \times x^6 = x^{10}$

$$x^{10} \times x = x^{11}$$

$$\underline{\underline{x^{11}}}$$

ii) $2x^2 \times 3x^3 \times 2x_4$

$$6x^5 \times 2x$$

$$\underline{\underline{12x^6}}$$

iii) $\frac{x^4 \times x^3 \times x^2}{x^9}$

$$x^4 \times x^3 = x^7$$

$$x^7 \times x^2 = x^9$$

$$\frac{x^9}{x^9} = x$$

$$\underline{\underline{x}}$$

~~iii)~~

iv) ~~$(3x^2)^3$~~ $(3x^2)^3$

$$3x^2 \times 3x^2 \times 3x^2$$

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2 of 8

23/11/2020

3 PM

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$$\textcircled{v} \sqrt{x} \times \sqrt{x}$$
~~$$x \times x$$~~

$$(\sqrt{x})^2$$

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

$$x$$

$$\underline{\underline{x}}$$

2.

$$\textcircled{i} 15x - 2 = 12x + 9$$

$$15x - 12x = 9 - 2$$

$$3x = 7$$

$$x = \frac{7}{3}$$

$$\underline{\underline{x = 2.33}}$$

$$\textcircled{ii} 3(7x - 1) = 6(x + 3)$$

$$21x - 3 = 6x + 18$$

$$21x - 6x = 18 - 3$$

$$15x = 15$$

$$x = \frac{15}{15}$$

$$\underline{\underline{x = 1}}$$

$$\textcircled{iii} \frac{5x + 3}{4} = \frac{2x - 1}{9}$$

$$9(5x + 3) = 4(2x - 1)$$

$$45x + 27 = 8x - 4$$

$$45x - 8x = -4 - 27$$

$$37x = -31$$



3 of 8

03/11/2020

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3

i) $x^2 + 10x + 21 = 0$

$$(x+7)(x+3) = 0$$

$$x \times x = x^2$$

$$x \times 3 = 3x$$

$$7 \times x = 7x$$

$$7 \times 3 = 21$$

~~22~~

$$x+7=0$$

$$x+3=0$$

$$\underline{x=-7}$$

$$\underline{x=-3}$$

ii) $x^2 - 3x + 2 = 0$

$$(x-1)(x-2) = 0$$

$$x \times x = x^2$$

$$-1 \times x = -x$$

$$x \times -2 = -2x$$

$$-1 \times -2 = 2$$

$$x-1=0$$

$$x-2=0$$



4 of 8

03/11/2020

3PM

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(iii)

$$x^2 + 12x + 20 = 0$$

$$(x+10)(x+2) = 0$$

$$x \times x = x^2$$

$$10 \times x = 10x$$

$$x \times 2 = 2x$$

$$2 \times 10 \times 2 = 20$$

$$x+10=0$$

$$x+2=0$$

$$\underline{\underline{x = -10}}$$

$$\underline{\underline{x = -2}}$$

(iv)

$$x^2 - 64 = 0$$

$$(x+8)(x-8) = 0$$

$$x \times x = x^2$$

$$8 \times 8 = 8x$$

$$x \times -8 = -8x$$

$$8 \times -8 = -64$$

$$x+8=0$$

$$x-8=0$$

$$\underline{\underline{x = -8}}$$

$$\underline{\underline{x = 8}}$$

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① $2x^2 + 9x + 10 = 0$

a	10
	S12

$(2x+5)(x+2) = 0$

$2x \times x = 2x^2$

$5 \times x = 5x, 9x$

$2x \times 2 = 4x$

$5 \times 2 = 10$

$2x+5=0$

$x+2=0$

$2x = -5$

~~$x = -2$~~

$x = \frac{-5}{2} = -2.5$

$x = -2$

~~$x = -2$~~

④ $14x^2 + 3x = 11$

$x = \frac{-3 \pm \sqrt{3^2 - 4(14)(11)}}{2(14)}$

$x = \frac{-3 \pm \sqrt{3^2 - 616}}{28}$

$x = \frac{-3 + \sqrt{9 - 616}}{28}$

$x = \frac{-3 + \sqrt{-607}}{28}$

$x = \frac{-3 - \sqrt{9 - 616}}{28}$

$x = \frac{-3 - \sqrt{-607}}{28}$

$x = \frac{-3 + \sqrt{-607}}{28}$

$x = \frac{-3 - \sqrt{-607}}{28}$



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$$\begin{array}{lcl} (5) & 5x + 3y = 39 & (1) \\ & 8x - 2y = 42 & (2) \end{array}$$

~~$$2(5x) \quad 2(5x + 3y)$$~~

~~$$2(8x - 2y) \quad 2(8x - 2y)$$~~

$$\begin{array}{l} 2 \times 5x + 3y = 39 \\ 10x + 6y = 78 \quad (3) \end{array}$$

$$\begin{array}{l} 3 \times 8x - 2y = 42 \\ 24x - 6y = 126 \quad (4) \end{array}$$

~~$$10x + 6y = 78$$~~

$$\begin{array}{r} 10x + 6y = 78 \\ 24x - 6y = 126 \\ \hline \end{array} +$$

$$34x = 204$$

$$x = \frac{204}{34}$$

$$\underline{\underline{x = 6}}$$

$$5(6) + 3y = 39$$

~~$$8(6) - 2y = 42$$~~

~~$$8(6) - 2y = 42$$~~

$$30 + 3y = 39$$

$$3y = 39 - 30$$

$$3y = 9$$

$$y = \frac{9}{3}$$

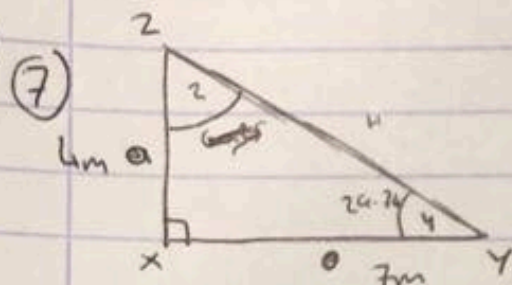
$$y = 3$$

$$\underline{\underline{y = 3}}$$

$$\begin{aligned} (6) \quad & 5(2x^2 - y^2) - x^2(x^2 - y) - x^2y - x^4 \\ & 10x^2 - 5y^2 - x^4 + x^2y - x^2y - x^4 \\ & 10x^2 - 5y^2 - 2x^4 \\ & \cancel{8x^2} \\ & \cancel{-2x^4} - 2x^4 + 10x^2 - 5y^2 \end{aligned}$$

7 of 8

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(i) $\tan \hat{y} = \frac{4}{7}$

~~Tan y~~

$\hat{y} = \tan^{-1}\left(\frac{4}{7}\right)$

$\hat{y} = 29.74^\circ$

(ii) ~~$\tan \hat{z} = \frac{7}{4}$~~ $\hat{z} = 180 - 90 - 29.74$
 ~~$\hat{z} = \tan^{-1}\left(\frac{7}{4}\right)$~~ $= \underline{60.26^\circ}$
 ~~$\hat{z} = 60.28^\circ$~~

(iii) $\overline{ZY}^2 = (\overline{ZX})^2 + (\overline{XY})^2$
 $\overline{ZY}^2 = 4^2 + 7^2$
 $= 16 + 49$
 $= 65$

$\overline{ZY} = \sqrt{65}$
 ~~$= 7.88$~~
 $= \underline{8.06 \text{ m}}$



8 of 8

03/11/2020

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⑧

① $\sqrt[3]{x}$
 $x^{\frac{1}{3}}$

② x^0