

$$1. \quad \frac{x-3}{3} - \frac{5}{x-2} = \frac{2}{3}$$

$$\frac{(x-3)(x-2) - 15}{\cancel{3x-6}} = \frac{2}{\cancel{3}}$$

$$\frac{x^2 - 5x + 6 - 15}{x-2} = 2$$

$$x^2 - 5x - 9 = 2x - 4$$

$$x^2 - 7x - 5 = 0$$

$$x = \frac{7 \pm \sqrt{69}}{2} \quad \text{ไม่ตรงข้อนี้}$$

$$2. \quad 24x^2 + 74x + 55 = 0$$

$$(6x+11)(4x+5) = 0$$

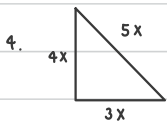
$$x = -\frac{11}{6} \text{ , } -\frac{5}{4}$$

$$A - B = -\frac{5}{4} - \left(-\frac{11}{6}\right) = \frac{7}{12}$$

$$3. \quad \text{สูตรคือ } \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

$$\text{โดยที่ } ax^2 - bx - c = 0 \rightarrow \frac{-(-b) \pm \sqrt{(-b)^2 - 4(a)(-c)}}{2a}$$

$$= \frac{b \pm \sqrt{b^2 + 4ac}}{2a}$$

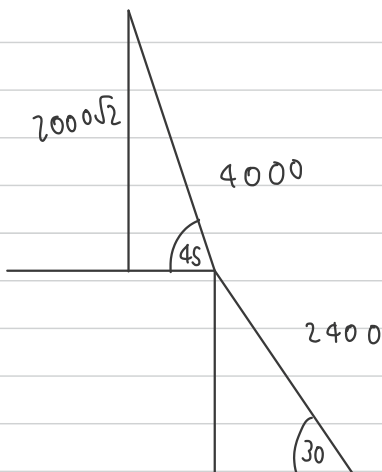


$$\frac{1}{2} (\cancel{4x})(5x) = 72$$

$$10x^2 = 72$$

$$x = \frac{6\sqrt{5}}{5} \text{ , } -\frac{6\sqrt{5}}{5}$$

$$5x = 6\sqrt{5}$$



12 นิ้ว 1600

20

80

$$\frac{1}{2} = \frac{x}{2400}$$

$$x = 1200$$

$$2000\sqrt{2} + 1200 = 400(5\sqrt{2} + 3)$$

$$5. \frac{x^2}{x+1} + \frac{2x+2}{x^2} = 3$$

$$\frac{x^4 + (2x+2)(x+1)}{x^2(x+1)} = 3$$

$$\frac{x^4 + 2x^2 + 4x + 2}{x^3 + x^2} = 3$$

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

$$x^4 - 3x^3 - x^2 + 4x + 2 = 0$$

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

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

$$y = \frac{1}{x} + \frac{1}{x^2}$$

$$\text{กรณี 1 } y = \frac{1}{1 - \sqrt{3}} + \frac{1}{(1 - \sqrt{3})^2} \rightarrow y = \frac{1}{2}$$

$$\text{กรณี 2 } y = \frac{1}{\frac{1 - \sqrt{5}}{2}} + \frac{1}{\left(\frac{1 - \sqrt{5}}{2}\right)^2} \rightarrow y = 1 \text{ x ไม่เข้าเงื่อนไข}$$

$$\text{กรณี 3 } y = \frac{1}{\frac{1 + \sqrt{5}}{2}} + \frac{1}{\left(\frac{1 + \sqrt{5}}{2}\right)^2} \rightarrow y = 1 \text{ x ไม่เข้าเงื่อนไข}$$

$$\text{กรณี 4 } y = \frac{1}{1 + \sqrt{3}} + \frac{1}{(1 + \sqrt{3})^2} \rightarrow y = \frac{1}{2}$$

$$\therefore y = \frac{1}{2}$$

$$6. x^2 + bx + c = (x + \sqrt{3})(x + \sqrt{2})$$

$$x^2 + bx + c = x^2 + (\sqrt{2} + \sqrt{3})x + \sqrt{6}$$

$$\hookrightarrow b = \sqrt{2} + \sqrt{3}$$

$$\hookrightarrow c = \sqrt{6}$$

$$b + c = \sqrt{2} + \sqrt{3} + \sqrt{6}$$

$$7. ax^2 - kx = 1$$

$$ax^2 - kx - 1 = 0$$

$$\text{สูตร } \frac{-b \pm \sqrt{b^2 - 4ac}}{2a} \rightarrow a = 1, b = -k, c = -1$$

$$= \frac{-(-k) \pm \sqrt{(-k)^2 - 4(1)(-1)}}{2(1)}$$

$$= \frac{k \pm \sqrt{k^2 + 4}}{2} \leftarrow r_1, r_2$$

$$7. \quad ax^2 - kx = 1$$

$$ax^2 - kx - 1 = 0$$

สูตร $\frac{-b \pm \sqrt{b^2 - 4ac}}{2a} \rightarrow a = a, b = -k, c = -1$

$$= \frac{-(-k) \pm \sqrt{(-k)^2 - 4(a)(-1)}}{2(a)}$$

$$= \frac{k \pm \sqrt{k^2 + 4a}}{2a} \leftarrow r_1, r_2$$

$$\text{หรือ } r_1 r_2 = -\frac{1}{a}$$

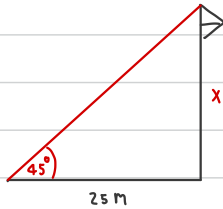
$$\therefore r_1 + r_2 + r_1 r_2 = \frac{k + \sqrt{k^2 + 4a}}{2a} + \frac{k - \sqrt{k^2 + 4a}}{2a} + \left(-\frac{1}{a}\right)$$

$$= \frac{k - 1}{a}$$

$$9. \quad \frac{\sin 45^\circ \cos 30^\circ + \tan 60^\circ \operatorname{cosec} 45^\circ}{\cot 30^\circ \sec 45^\circ}$$

$$= \frac{\left(\frac{\sqrt{2}}{2} \times \frac{\sqrt{3}}{2} + \sqrt{3} \sqrt{2}\right)}{\sqrt{3} \sqrt{2}} = \frac{5}{4} *$$

10.



$$\tan 45 = 1$$

$$\frac{x}{25} = 1$$

$$x = 25$$

$$11. \quad 3 \tan^2 \frac{\pi}{6} + \frac{4}{3} \cos^2 \frac{\pi}{6} - \frac{2}{3} \sin^2 \frac{\pi}{3}$$

$$= 3 \left(\frac{\sqrt{3}}{3}\right)^2 + \frac{4}{3} \left(\frac{\sqrt{3}}{2}\right)^2 - \frac{2}{3} \left(\frac{1}{2}\right)^2$$

$$= \frac{11}{6} *$$

$$12. \frac{3 \sin^2 A - 2 \cos^2 A}{\tan^2 A} \rightarrow \sin A + \cos A = \sqrt{2}$$

$$\sin A + \cos A = \sqrt{2}$$

$$\sin 45^\circ + \cos 45^\circ = \sqrt{2}$$

$$\frac{\sqrt{2}}{2} + \frac{\sqrt{2}}{2} = \sqrt{2}$$

$$\frac{3\left(\frac{\sqrt{2}}{2}\right)^2 - 2\left(\frac{\sqrt{2}}{2}\right)^2}{1} = \frac{1}{2}$$

$$13. \begin{array}{l} A = 3 \\ B = 4 \end{array} \rightarrow \begin{array}{l} A = 10 \\ B = \end{array}$$

$$x^2 + 7x + y =$$

$$(x-8)(x-2) = x^2 - 10x + 16$$

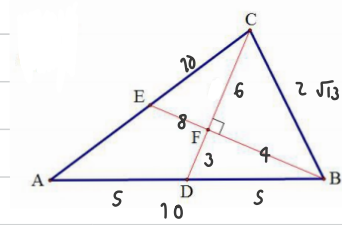
$$(x-8)(x-9) = x^2 - 17x + 72$$

$$x^2 - 17x + 16$$

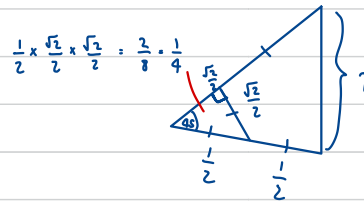
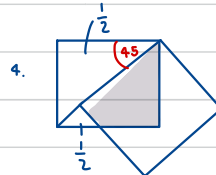
$$(x-16)(x-1) = 0$$

$$x = 16, 1$$

3.



$$20 + 2\sqrt{13} \#$$



$$665697 = \frac{1}{2} - \frac{1}{4} = \frac{1}{2}$$

$$\sin 45^\circ = \frac{\sqrt{2}}{2} = \frac{x}{\frac{1}{2}}$$

$$x = \frac{\sqrt{2}}{4}$$

9.	$v = 2s$	$v = s$
	$t = \frac{1}{2}$	$t = 1$
	$s = s$	$s = s$

$$s: 2s$$

$$1: 2 \#$$

$$10. \left(\frac{1}{3}\right)^{\frac{1}{3}} < \left(\frac{1}{2}\right)^{\frac{1}{2}}$$

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

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