

Maths exam

1)

$$a) = x + \textcircled{x^{17}}$$

$$b) = 2^2 = 4^4 = 16 \times 8$$

$$16 \times 8 \times 3 \times 3 = \textcircled{48 \times 11}$$

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

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

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

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

$$-5x = 7$$

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

$$c) \frac{x^2 \times x^{10} \times x}{x^3 \times \textcircled{x^{10}}}$$

$$\frac{x^3}{x^3} = \textcircled{x^{10}}$$

$$d) 2\sqrt{x} \times 3\sqrt{x} = \textcircled{6x}$$

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

$$E) 1 = 1 = \textcircled{x}$$

$$\cancel{x^2} + 4x + 4 = x^2 + 3x + 5x + 15$$

$$\cancel{x^2} + 4x + 4 = \cancel{x^2} + 8x + 15$$

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

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

$$-4x = 11$$

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

$$2) 7x - 1 = 5x + 4$$

$$7x - 5x = 1 + 4$$

$$2x = 5$$

$$\textcircled{x = \frac{5}{2}}$$

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

$$3) x^2 + 9x + 14 = 0$$

$$\cancel{3x} 30x + 20 = -14x - 7$$

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

$$44x = -27$$

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

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

$$x^2 + 7x + 2x + 14 = 0$$

$$x(x+7) + 2(x+7) = 0$$

$$(x+7)x(x+2) = 0$$

$$\cancel{x} \times \cancel{x+7} \times x + 7 = 0$$

$$\cancel{x} \times \cancel{x+2} \times x + 2 = 0$$

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

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

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

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

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

$$(x-2) \times (x-5) = 0$$

$$x-2=0$$

$$x-5=0$$

$$x=2$$

$$x=5$$

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

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

$$x = -10$$

$$x = 2$$

d $x^2 - 49 = 0$

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

$$x = 7$$

$$x = -7$$

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

$$(2x+5)(x-4) = 0$$

$$2x+5=0$$

$$x-4=0$$

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

$$x = 4$$

$$4 \quad 17x^2 = -5x + 14$$

$$x = \frac{-5 \pm \sqrt{25 - 4 \cdot 17 \cdot (-14)}}{2 \cdot 17}$$

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

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

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

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

$$5 \quad 6x + 5y = 35 \quad \times 4$$

$$7x - 4y = 31 \quad \times 4$$

$$24x + 20y = 140$$

$$28x - 20y = 155$$

$$52x = 295$$

$$x = \frac{295}{52} \quad \boxed{x=5}$$

$$\boxed{y=1}$$

$$6 \quad 10p^3q^2 - 5p^2q + 15p^4q$$

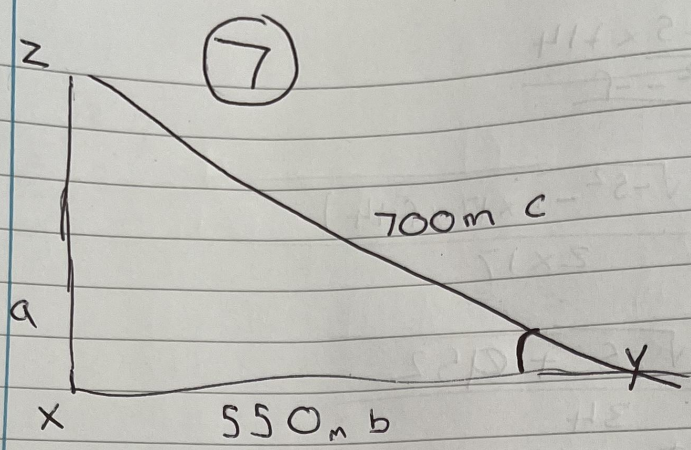
$$\cancel{5p^2q + 15p^4q}$$

$$\cancel{20p^3q^2}$$

$$\boxed{5p^2q (2pq - 1 + 3p^2)}$$

$$b) \quad 2x^2y - 4xy^2$$

$$\boxed{2xy(x - 2y)}$$



$$\frac{c}{a+b}$$

$a = 700 - b$
 $\frac{c}{b} = a$
 $a) c - b = a$
 $700 - 550 = 150$
 $\text{Height} = 150m$
 $\frac{700}{550} = 1.2727$

b 45°

