

1.

$$i) x^6 \times x^8 \times x^2 \times x$$

$$\boxed{x^{17}}$$

$$ii) (2x^2)^4 \times 3x^3$$

$$2^4(x^2)^4 \times 3x^3$$

$$16x^8 \times 3x^3$$

$$16 \times 3 = 48x$$

$$8+3=11$$

$$\boxed{48x^{11}}$$

$$iii) \frac{x^{13}}{x^3} = \boxed{x^{10}}$$

$$iv) \sqrt{x} \times 3\sqrt{x}$$

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

$$2 \times 3(\sqrt{x})^2$$

$$6(\sqrt{x})^2$$

$$\boxed{6x}$$

$$v) \boxed{x}$$

2.

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

$$30x+20 = 7(-2x-1)$$

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

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

$$44x+20 = -7$$

$$44x = -7-20$$

$$44x = -27$$

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

2.

$$iii) \frac{3}{(2x+1)} \times \frac{4}{(x-1)}$$

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

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

$$8x-3x-3-8x = -5x-3$$

$$-5x-3 = 4$$

$$-5x = 4+3 = 7$$

$$-5x = 7$$

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

2.

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

2.

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

$$7x-5x = 2x$$

$$2x = 4+1$$

$$2x = 5$$

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

$$\boxed{x = 2.5}$$

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3. + x
i) $x^2 + 9x + 14 = 0$
 $(x+7)(x+2) = 0$
 $x+7=0$ $x+2=0$
 $\boxed{x=-7}$ $\boxed{x=-2}$

ii) $x^2 - 7x + 10 = 0$
 $(x-5)(x-2) = 0$
 $\boxed{x=5}$ $\boxed{x=2}$

iii) $x^2 + 8x - 20 = 0$
 $(x+10)(x-2) = 0$
 $\boxed{x=-10}$ $\boxed{x=2}$

iv) $x^2 - 49 = 0$
 $x^2 - 7^2 = 0$
 $\boxed{x=-7}$ $\boxed{x=7}$

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

4. A B C
 $17x^2 = -5x + 14$
 $-5 \pm \frac{\sqrt{5^2 - 4 \times 17(-14)}}{2 \times 17}$

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

$$-5 \pm \frac{\sqrt{25 + 68(-14)}}{2 \times 17}$$

$$-5 \pm \frac{\sqrt{25 + 952}}{2 \times 17}$$

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

$$x = \frac{977}{34} \quad x = -\frac{977}{34}$$

$$5.6x + 5y = 35 \quad \textcircled{1}$$

$$7x - 4y = 31 \quad \textcircled{2}$$

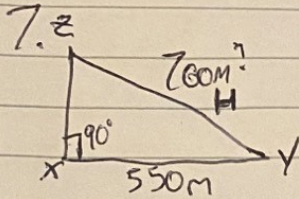
$$6x = 35 - 5y$$

6.

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$$i) 180 - 90 - 38.21 = 51.79^\circ$$

$$\tan 51.79 = \frac{550}{ZX}$$
$$ZX = \frac{550}{\tan 51.79}$$

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

$$\cos \theta = 0.7857$$

$$\theta = \cos^{-1} 0.7857$$

$$\theta = 38.21^\circ$$

$$ZX = \frac{550}{1.2703}$$

$$ZX = \boxed{432.96m}$$