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200 3557

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1)

a) $x^2 + 8x + 15 = 0$

$$(x + 5)(x + 3) = 0$$

$$-5 \left(\begin{array}{l} x + 5 = 0 \\ x = -5 \end{array} \right) - 5 \quad -3 \left(\begin{array}{l} x + 3 = 0 \\ x = -3 \end{array} \right) - 3$$

b) $x^2 - 225 = 0$

$$(x + 15)(x - 15) = 0$$

$$-15 \left(\begin{array}{l} x + 15 = 0 \\ x = -15 \end{array} \right) - 15 \quad +15 \left(\begin{array}{l} x - 15 = 0 \\ x = 15 \end{array} \right) + 15$$

c) $x^2 + 11x + 30 = 0$

$$(x + 10)(x + 1) = 0$$

$$-10 \left(\begin{array}{l} x + 10 = 0 \\ x = -10 \end{array} \right) - 10 \quad -1 \left(\begin{array}{l} x + 1 = 0 \\ x = -1 \end{array} \right) - 1$$

d) $x^2 - 6x + 8 = 0$

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

$$+4 \left(\begin{array}{l} x - 4 = 0 \\ x = 4 \end{array} \right) + 4 \quad +2 \left(\begin{array}{l} x - 2 = 0 \\ x = 2 \end{array} \right) + 2$$

e) $2x^2 + 9x + 7 = 0$

$$(2x + 1)(x + 7) = 0$$

$$\begin{array}{ll} -1 \left(\begin{array}{l} 2x + 1 = 0 \\ 2x = -1 \\ x = -0.5 \end{array} \right) - 1 & -7 \left(\begin{array}{l} x + 7 = 0 \\ x = -7 \end{array} \right) - 7 \\ \div 2 & \end{array}$$

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$$1) \quad ax^2 + bx + c = 0$$
$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

$$2) \quad a) \quad 12x^2 + 5x = 7$$
$$12x^2 + 5x - 7 = 0$$
$$x = \frac{-5 \pm \sqrt{(5)^2 - 4(12)(-7)}}{2(12)}$$
$$x = \frac{-5 \pm \sqrt{25 + 336}}{24}$$
$$x = \frac{-5 \pm \sqrt{361}}{24}$$
$$x = \frac{-5 \pm 19}{24}$$

$$x = \frac{-5 + 19}{24}$$

$$x = \frac{14}{24}$$

$$x = 0.58$$

$$x = \frac{-5 - 19}{24}$$

$$x = \frac{-24}{24}$$

$$x = -1$$

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Question 3

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3)

$$\begin{array}{l} a) \quad 5x + 2y = 22 \quad (1) \quad (\times 3) \\ \quad \quad 4x + 3y = 19 \quad (2) \quad (\times 2) \end{array}$$

$$x = 4$$

$$y = 1$$

$$15x + 6y = 66 \quad (3)$$

$$x + 6y = 38 \quad (4)$$

$$(3) - (4)$$

$$\div 7 \left(\begin{array}{l} 7x = 28 \\ x = 4 \end{array} \right) \div 7$$

$$\begin{array}{l} 5(4) + 2y = 22 \\ 20 + 2y = 22 \\ -20 \quad \quad 2y = 2 \quad -20 \\ \div 2 \quad \quad y = 1 \quad \div 2 \end{array}$$

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4)

a) $x^8 \times x \times x^9 = x^{18}$

b) $(2x^3)^3 = 8x^9$

c) $\frac{x^{12} \times x^8}{x} = x^{19}$

d) $5x^2 \times 3x^4 = 15x^6$

e) $\frac{10x^5}{2x^2} = 5x^3$

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5)

$$\begin{aligned} a) & 2(x^2 - y^2) + x^2(x - y) + 3xy - x^3 \\ & 2x^2 + y^2 + x^3 - x^2y + 3xy - x^3 \\ & 2x^2 + 2y^2 - x^2y + 3xy \end{aligned}$$

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b)

$$a) 5(2x+1) = 4(3x+2)$$

$$10x+5 = 12x+8$$

$$5-8 = 12x-10x$$

$$\div 2 \left(\begin{array}{l} -3 = 2x \\ -1.5 = x \end{array} \right) \div 2$$

$$b) 12x+5 = 4x-1$$

$$12x-4x = -1+5$$

$$\div 8 \left(\begin{array}{l} 8x = 4 \\ x = 0.5 \end{array} \right) \div 8$$

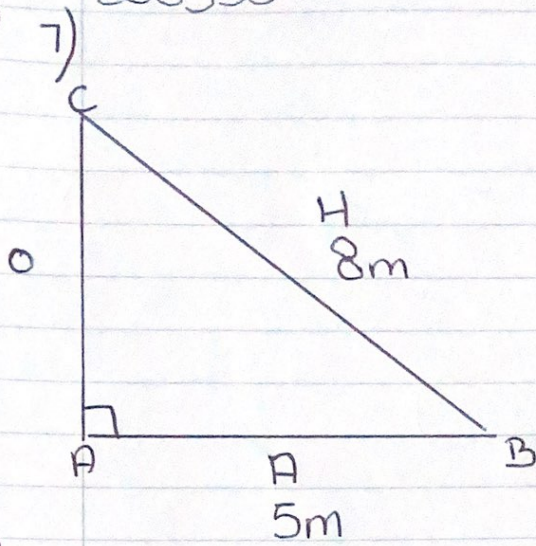
$$c) \frac{(4x-1)}{3} = \frac{(5x+2)}{2}$$

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

$$8x-2 = 15x+6$$

$$-2-6 = 15x-8x$$

$$\div 7 \left(\begin{array}{l} -8 = 7x \\ -1.14 = x \end{array} \right) \div 7$$



$$\textcircled{a} \cos B = \frac{5}{8}$$
$$B = \cos^{-1}(0.625)$$
$$B = 51.32^\circ$$

$$\textcircled{b} \hat{C} = 180^\circ - 90^\circ - 51.32^\circ$$
$$\hat{C} = 38.68$$

$$\textcircled{c} \tan 51.32 = \frac{AC}{5}$$
$$5 \tan 51.32 = AC$$
$$6.25 = AC$$