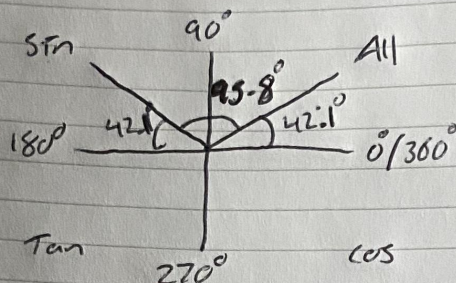


Charlie Brewster
2004753

3) a)

$$\begin{aligned} \text{i) } \sin x &= 0.67 \\ x &= \sin^{-1}(0.67) \\ x &= 42.1^\circ \end{aligned}$$

$$0^\circ \leq x \leq 360^\circ$$



$$\begin{aligned} 180 - 42.1 &= 138.8 \\ x &= 138.8^\circ \end{aligned}$$

4)

$$\begin{aligned} y &= 5x^2 + 12x - 14 \\ y &= 4x^2 + 3x - 4 \end{aligned}$$

$$\begin{aligned} &= x^2 + 9x - 18 \\ &= (x+3)(x+6) \end{aligned}$$

2-1

$$\begin{aligned} x+3 &= 0 & x+6 &= 0 \\ x &= -3 & x &= -6 \end{aligned}$$

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$$\begin{aligned} y &= 5x^2 + 12x - 14 \\ y &= 15 + 24 - 14 \\ y &= 25 \end{aligned}$$

$$\begin{aligned} y &= 5x^2 + 12x - 14 \\ y &= 30 + 24 - 14 \\ y &= 40 \end{aligned}$$

6) a)

$$\begin{aligned} \text{i) } y &= 9x^3 + 7x^2 - x + 4 \\ &= 9x^3 + 7x^2 - 4x \\ \frac{dy}{dx} &= 9(3x^2) + 7(2x) - 4 \\ &= 27x^2 + 14x - 4 \end{aligned}$$

$$\begin{aligned} \text{ii) } y &= (2x+3)(3x-5) \\ y &= 6x^2 - 10x + 9x - 15 \\ y &= 6x^2 - x - 15 \\ \frac{dy}{dx} &= 12x - 1 \end{aligned}$$