



31st January

Do the points $A(1, 4)$, $B(4, 10)$ and $C(9, 20)$ lie in a straight line?

$$\text{gradient of } AB = \frac{10-4}{4-1} = 2$$

$$\text{gradient of } BC = \frac{20-10}{9-4} = 2$$

As AB & BC have the same gradient and both pass through B , ABC is a straight line.

Prove that the product of two odd numbers is always odd.

$$(2m+1)(2n+1) =$$

$$4mn + 2m + 2n + 1$$

$$2(\overset{\text{even}}{2mn + m + n}) + 1 = \text{odd}$$

which is odd

Work out

$$\left(2^{\frac{1}{2}} + 2^{\frac{5}{2}}\right)^3$$

$$\left(2^{\frac{1}{2}} + 2^{\frac{5}{2}}\right)\left(2^{\frac{1}{2}} + 2^{\frac{5}{2}}\right)$$

$$2^1 + 2^3 + 2^3 + 2^5 = 2 + 8 + 8 + 32$$

$$50(2^{\frac{1}{2}} + 2^{\frac{5}{2}}) \quad 2^{\frac{5}{2}} = 2^2 \times 2^{\frac{1}{2}} = 4\sqrt{2}$$

$$50(\sqrt{2} + 4\sqrt{2})$$

$$50\sqrt{2} + 200\sqrt{2}$$

$$250\sqrt{2}$$

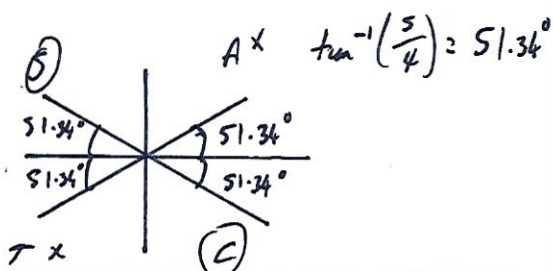
$$5\cos x + 4\sin x = 0$$

where $0^\circ < x < 360^\circ$

Work out the size of angle x .

$$4\sin x = -5\cos x$$

$$\tan x = -\frac{5}{4}$$



$$x = 128.66^\circ, 308.66^\circ$$