

18th September



Corbettmaths

Show that $(\sqrt{2} + 3\sqrt{8})^2 = 98$

$$(\sqrt{2} + 3\sqrt{8})^2$$

$$2 + 3 \times \sqrt{16} + 3 \times \sqrt{16} + 9 \times 8$$

$$2 + 12 + 12 + 72 = 98$$

98

~~QED~~

QED

Prove the sum of four consecutive odd numbers is always a multiple of 8

$$(2n+1) + (2n+3) + (2n+5) + (2n+7)$$

$$8n + 16$$

$$8(n+2)$$

$$f(x) = 8 - 3x$$

$$g(x) = 4x$$

Calculate the value of $gf(3)$

$$f(3) = 8 - 3 \times 3$$

$$= -1$$

$$g(-1) = 4 \times -1$$

$$= -4$$

ABCD is a square, X is a point in the diagonal BD and the perpendicular from B to AX meets AC in Y.

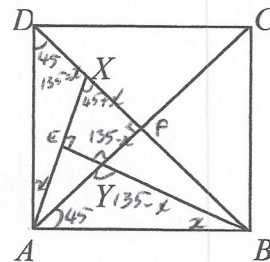
Prove that triangles AXD and AYB are congruent.

AB = AD as a square

$$\angle BAC = \angle ABD = 45^\circ \text{ (diagonal bisects right angle)}$$

$$\text{Let } \angle ABY = x$$

$$\angle AYB = 135 - x$$

 $\angle YFP = \angle AYB$ vertically opposite $\angle AEP = \angle XEP = 90^\circ$ (perpendicular in Q)XEYP is a kite, so $\angle XFP = 45 + x$ $\therefore \angle OXA = 135 - x$ (straight line) $\angle OAX = x$ (angles in a triangle) $\triangle AYB$ is congruent to $\triangle AXD$ due to ASA