Name: _____ 5-a-day Higher Plus

7th January

Corbettmaths

Expand and simplify

$(x + 2)(x + 5)(2x - 1)$

$(x^2+7x+10)(2x-1)$

$2x^3 + 13x^2 + 13x - 10$

The line l_1 has equation $y = 4x + 3$
The line l_2 has equation $5x + 2y - 9 = 0$

Find the gradient of line l_2

$2y = -5x + 9$

$y = -\frac{5}{2}x + \frac{9}{2}$ gradient $= -\frac{5}{2}$

Find the point of intersection of l_1 and l_2

$4x + 3 = -\frac{5}{2}x + \frac{9}{2}$

$8x + 6 = -5x + 9$

$13x = 3$

$x = \frac{3}{13}$ $x = \frac{3}{13}$

$y = 4(\frac{3}{13}) + 3 = \frac{51}{13}$ & $y = \frac{51}{13}$

Given that

$16^x = 4^{10-x}$

Find the value of x

$(2^4)^x = (2^2)^{10-x}$

$2^{4x} = 2^{20-2x}$

$4x = 20 - 2x$

$6x = 20$

$x = \frac{20}{6} = \frac{10}{3}$

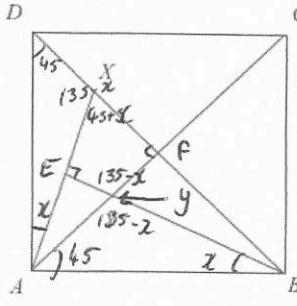
Which number has no reciprocal?

0

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.

→ AEB = XEB = 90° (perpendicular from Q)
Four right angles at F (diagonals of a square)
XEYF is a kite & since XEY = XFY = 90°
then EYF & EXF add to 180,
so EXF = 45 + x
∴ OXA = 135 - x (straight line)
∴ OAX = x (triangle)
∴ AYB & AXD are congruent
due to Angle Side Angle.



AB = AD (Square)
BAC = ABC = 45° (Diagonal bisects right angle)
Let ABY = x
∴ AYB = 135 - x
EYF = AYB (vertically opposite)