



Factorise fully

$$7x^2 - 28$$

$$7(x^2 - 4)$$

$$7(x-2)(x+2)$$

Yasmin creates a 6 digit passcode for her phone such that all the digits are prime numbers.

Jack knows that all the digits are prime and he tries to guess the passcode.

What is the probability he guesses correctly?

2, 3, 5, 7

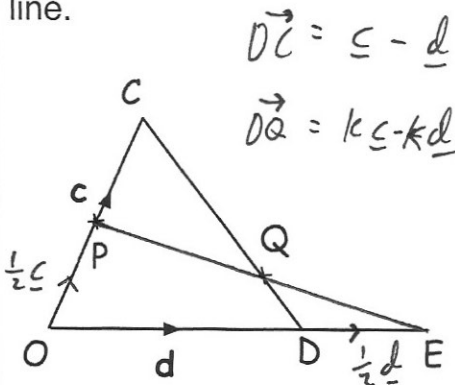
$$4 \times 4 \times 4 \times 4 \times 4 \times 4 = 4096$$

$$\frac{1}{4096}$$

$$\vec{OC} = \underline{c} \quad \vec{OD} = \underline{d}$$

Point P is the midpoint of OC  
ODE is a straight line such that  
OD:OE = 2:3

The points P, Q and E are in a straight line.



$$\vec{DQ} = k\vec{DC}$$

Find the value of k

$$\vec{PE} = -0.5\underline{c} + 1.5\underline{d}$$

$$\vec{PQ} = -0.5\underline{c} + \underline{d} + k\underline{c} - k\underline{d}$$

$$\vec{PE} = (-0.5 + k)\underline{c} + (1.5 - k)\underline{d}$$

$$\frac{-0.5}{-0.5 + k} = \frac{1.5}{1 - k}$$

$$-0.5 + 0.5k = -0.75 + 1.5k$$

$$0.25 = k$$

$$k = \frac{1}{4}$$

Parallel

The first 4 terms of a sequence are:

$$500, 490, 475, 455 \dots$$

$$\begin{matrix} -10 & -15 & -20 \\ -5 & -5 & \end{matrix}$$

$$a = -2.5$$

$$b = -2.5$$

$$c = 505$$

Which term is the first to be negative?

$$-2.5n^2 - 2.5n + 505$$

14<sup>th</sup> term is -20