



A sequence of numbers is formed by the iterative process

$$a_{n+1} = (a_n)^2 - 10$$

$$a_1 = 3$$

$$a_2 = 3^2 - 10 = -1$$

Find

$$a_3$$

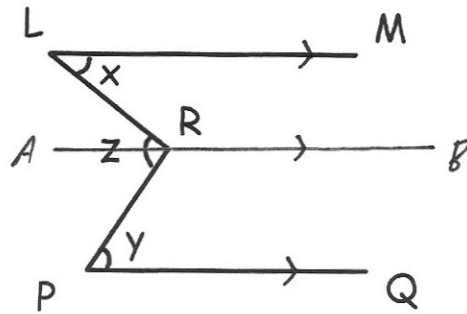
$$\begin{aligned} a_3 &= (-1)^2 - 10 \\ &= 1 - 10 \\ &= -9 \\ &= \end{aligned}$$

LM and PQ are parallel

Prove $x + y = z$

$$\begin{aligned} \angle MLR &= \angle LRA \quad (\text{alternate angles are equal}) \\ \angle RPQ &= \angle PRA \end{aligned}$$

$$\angle PRL = x + y \quad \therefore z = x + y$$



Ethan has 12 coins.

There are three 10p coins and nine 20p coins.

Ethan chooses 3 coins at random.

Work out the probability that he takes exactly 50p.

$$P(20, 20, 10) = \frac{9}{12} \times \frac{8}{11} \times \frac{3}{10} = \frac{9}{55}$$

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$$\boxed{\frac{27}{55}}$$

Solve

$$3^{4x} = 27^{5-x}$$

$$3^{4x} = (3^3)^{5-x}$$

$$4x = 15 - 3x$$

$$7x = 15$$

$$x = \frac{15}{7}$$

Find the nth term for the sequence

0 9 20 33 48
1 11 13 15
2 2 2

$$a = 1$$

$$b = 6$$

$$c = -7$$

$$n^2 + 6n - 7$$