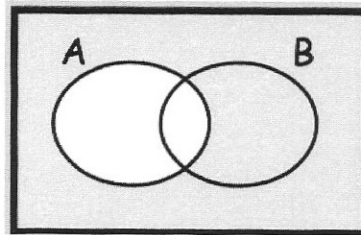




Which region is shaded?

A A' B B'

A'



The first term of a sequence is $5 - 2a$
 The term-to-term rule of the sequence is subtract $4a$ and then multiply by 2
 The fourth term of the sequence is 58

Work out the second term of the sequence.

$$\begin{aligned} 2^{nd} &: 10 - 12a \\ 3^{rd} &: 20 - 32a \\ 4^{th} &: 40 - 72a \\ 40 - 72a &= 58 \\ a &= -0.25 \\ 10 - (12 \times -0.25) &= 13 \end{aligned}$$

A circle, centre $(0, 0)$ has an area of 64π

Work out the equation of the circle.

$$\begin{aligned} \pi r^2 &= 64\pi \\ r^2 &= 64 \\ r &= 8 \end{aligned}$$

$$x^2 + y^2 = 64$$

The ratio of Matt's age to Paul's age is $x:y$

Two years ago, the ratio of their ages was 5:8

In three years time, the ratio of their ages will be 2:3

$$\begin{aligned} 8(x-2) &= 5(y-2) \\ 8x - 16 &= 5y - 10 \\ 3(x+3) &= 2(y+3) \\ 3x + 9 &= 2y + 6 \end{aligned}$$

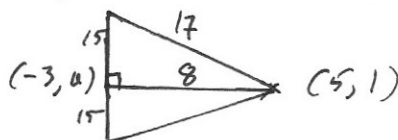
Express $x:y$ in its lowest terms

$$\begin{aligned} 8x - 5y &= 6 & 16x - 10y &= 12 \\ 3x - 2y &= -3 & 15x - 10y &= -15 \\ & & \hline & & z &= 27 \\ 27 &: 42 & 81 - 2y &= -3 \\ 9 &: 14 & -2y &= -84 \\ & & y &= 42 \end{aligned}$$

The distance between $(-3, a)$ and $(5, 1)$ is 17 units.

$$\boxed{8, 15, 17}$$

Find two possible values for a .



$$\begin{aligned} 17^2 - 8^2 &= 225 \\ \sqrt{225} &= 15 \end{aligned}$$

$$\begin{aligned} 1 + 15 &= 16 & (-3, 16) \\ 1 - 15 &= -14 & (-3, -14) \\ a &= -14 \text{ or } a = 16 \end{aligned}$$