



Solve

$$6x^2 + 17x - 39 = 0$$

$$(3x + 13)(2x - 3) = 0$$

$$x = -\frac{13}{3} \quad \text{or} \quad x = \frac{3}{2}$$

The point A has coordinates  $(-6, 0)$   
 The point B has coordinates  $(0, 3)$   
 The point C has coordinates  $(9, -1)$   
 $x$   $y$

Find the equation of the line that passes through C and is perpendicular to AB.

$$\text{gradient of } AB = \frac{3}{6} = \frac{1}{2}$$

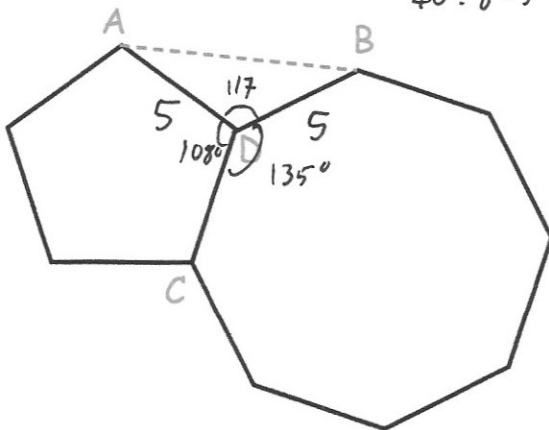
$$y = -2x + c$$

$$-1 = -18 + c \quad c = 17$$

$$y = -2x + 17$$

A is a vertex of a regular pentagon.  
 B is a vertex of a regular octagon.  
 C and D are vertices of both polygons.

$$40 \div 8 = 5$$



The perimeter of the octagon is 40cm.  
 Work out the length AB

$$(8-2) \times 180 = 1080$$

$$1080 \div 8 = 135^\circ$$

$$(5-3) \times 180 = 540$$

$$540 \div 5 = 108^\circ$$

$$AB^2 = 5^2 + 5^2 - 2 \times 5 \times 5 \times \cos 117$$

$$AB^2 = 72.699 \dots$$

$$AB = 8.526 \text{ cm}$$

For all values of  $x$ 

$$f(x) = 3x + 2 \quad \text{and}$$

$$g(x) = (x - 3)^2$$

Find  $fg(x)$ 

$$fg(x) = 3(x-3)^2 + 2$$

$$= 3(x-3)(x-3) + 2$$

$$= 3(x^2 - 6x + 9) + 2$$

$$= 3x^2 - 18x + 27 + 2$$

$$= 3x^2 - 18x + 29$$