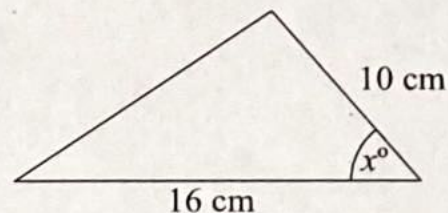


1 Simplify fully  $\frac{3x^2 - 17x + 10}{x^2 - 7x + 10}$

2



The area of the triangle is  $55\text{cm}^2$   
Work out the value of  $x$ .  
Give your answer to 1 decimal place.

3 Given that  $f(x) = 2x + 1$  and  $g(x) = x^2 + 3$   
Find  $fg(x)$

4 Write  $(4 + \sqrt{5})^2$  in the form  $a + b\sqrt{5}$ ,  
where  $a$  and  $b$  are integers.

5 The number of people living in a town  $t$  years from now is  $P_t$  where

$$P_0 = 42000$$

$$P_{t+1} = 1.02(P_t - 550)$$

Work out the number of people in the town 3 years from now.

6  $g$  is directly proportional to the square root of  $h$   
When  $g = 4$ ,  $h = 36$

Find the value of  $h$  when  $g = 2$

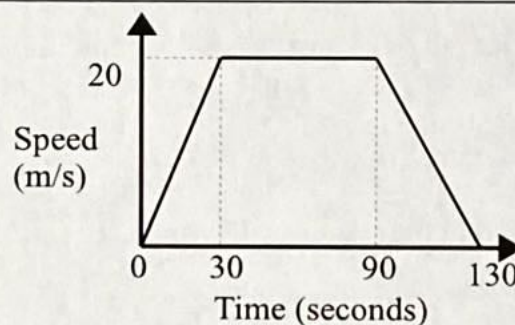
7  $a = \frac{b}{c}$

$b = 9.37$  correct to 2 decimal places

$c = 5.4$  correct to 1 decimal place

Work out the lower bound for  $a$ .  
Give your answer to 2 decimal places.

8



Calculate the total distance travelled.

9  $P$  is the point  $(2,1)$  on the circle  $x^2 + y^2 = 5$

Work out the equation of the tangent to the circle at  $P$ .

10 The coordinates of the turning point of a curve are  $(1, 4)$

Write down the coordinates of the turning point of the curve with equation  $y = f(x + 3)$