

## Lighthouse 7 (Checkpoint 1)

1. Complete this times table grid

X	$-8a^2$	$6bc$	$5cd$
$5ed$			
$-9fa$			
$7ad$			

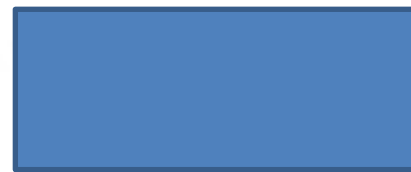
2. Simplify  $35a^3b^2 \div 5b^5cd$

3. What is the upper bound of 0.0045 if it has been rounded to 2 s.f ?

4. Write as a normal number

a)  $(3.1 \times 10^4) \times (4 \times 10^5)$

b)  $(2.0 \times 10^7) \div (5 \times 10^5)$



$a + 2$

$2a + 9$

5. I invest £300 at 10% compound interest for two years. Calculate the total in the account at the end of the two years.

6. What is the value of  $a$  if the area of the rectangle is  $75\text{cm}^2$ ?

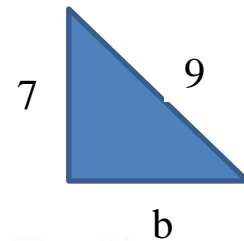
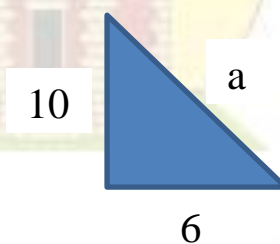
7. A regular polygon's interior angles sum to 540 degrees. Two are drawn so there is a common vertex. What angle is left around the vertex?

8.  $Q(5, 17)$  and  $R(-1, -1)$  are the ends of a line segment

a) Find the midpoint of QR

b) Find the gradient of QR

9. Solve 
$$\begin{aligned} x + 2y &= 19 \\ y &= 2x - 13 \end{aligned}$$



10. Find the missing side lengths leave your answer as a surd (e.g.  $\sqrt{51}$ )

11. There are 5 reds and 3 green counters in a bag. I take one counter, **do not replace it**, and then take another. What is the probability the two counters are the same colour?

12. Factorise a)  $2a^2 + 3a - 2$

b)  $4a^2 - 9$