

## Lighthouse 7 (Checkpoint 6)

1. Complete this times table grid

|        |         |       |       |
|--------|---------|-------|-------|
| X      | $-9a^2$ | $8bc$ | $4cd$ |
| $6ed$  |         |       |       |
| $-8fa$ |         |       |       |
| $7ad$  |         |       |       |

2. Simplify  $48t^7a^4 \div 6t^3a$

3. What is the upper bound of 0.0031 if it has been rounded to 2 s.f ?

4. Write as a normal number

a)  $(4.3 \times 10^5) \times (2 \times 10^3)$

b)  $(8.4 \times 10^2) \div (4 \times 10^6)$



$a + 4$

5. I invest £640 at 5% 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  $363 \text{ cm}^2$ ?

7. A regular polygon's interior angles sum to 1260 degrees. Two are drawn so there is a common vertex. What angle is left around the vertex?

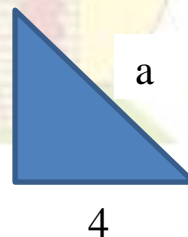
8.  $Q(8, 12)$  and  $R(-1, -6)$  are the ends of a line segment

a) Find the midpoint of QR

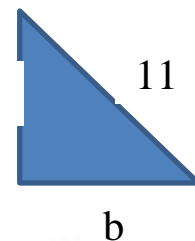
b) Find the gradient of QR

9. Solve  $5x + 2y = 46$   
 $y = 2x - 13$

2



7



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

11. There are 8 reds and 7 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)  $3a^2 - 10a - 8$

b)  $49a^2 - 1$