Moments **Answers**

1. Calculate the resulting moment (turning effect force) using the formula:

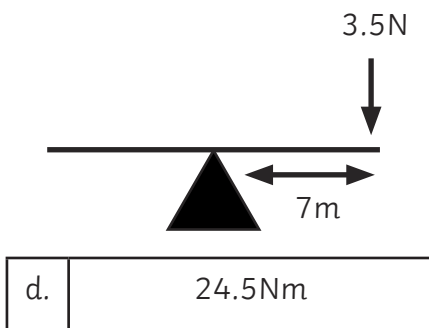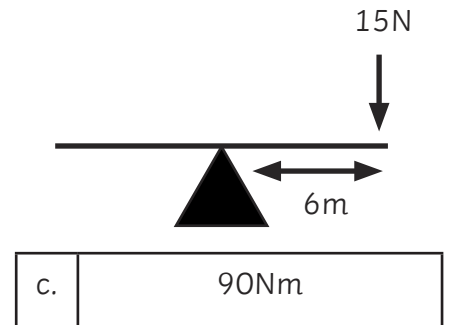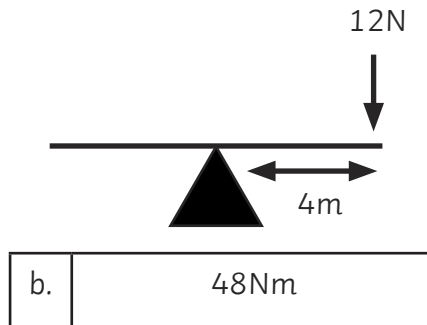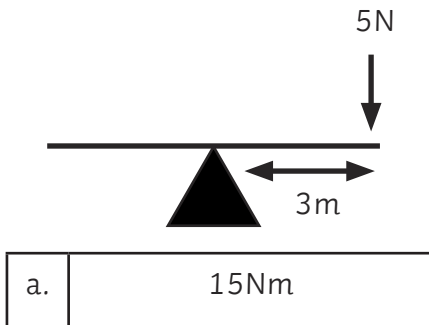**moment (Nm) = force (N) × perpendicular distance (m)**

5N	12N	15N
3m	4m	6m

a.	15Nm	b.	48Nm	c.	90Nm

3.5N	10N	5N	3N	2N
7m	2m	3m	4m	6m

d.	24.5Nm	e.	5Nm (anti-clockwise)	f.	0Nm (balanced)
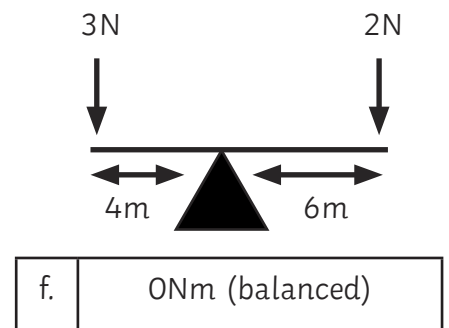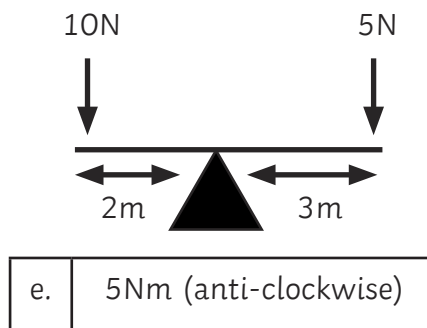
Answer the questions using your understanding of moments.

2. Which of the three spanners shown below would require the least effort (force applied) to turn the bolt? Explain your answer. [3]

C (longest spanner), as a moment is equal to the force applied multiplied by distance, increasing the distance means the force applied can be reduced.

3. Joe is using a lever to try and open the lid on a tin of paint. The lid requires a moment of 3.5N to open it. He is able to exert a maximum force of 15N. What is the shortest length of lever he can use to open the paint tin. Show your working. [3]

rearrange formula: distance = moment ÷ force

  = 3.5Nm ÷ 15N

  = 0.23m

(1 mark for working, 1 mark for answer, 1 mark for units)