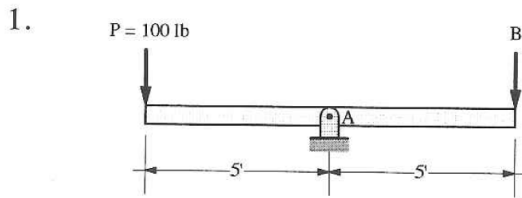


Moment Practice Problems

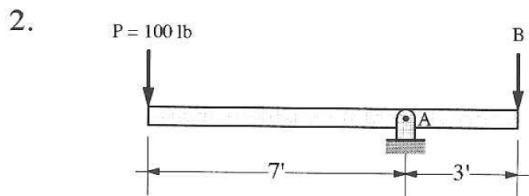
For each situation, take moments about point A and determine the unknown value.



$$\underline{\Sigma M_A = 0}$$

$$5P - 5B = 0$$

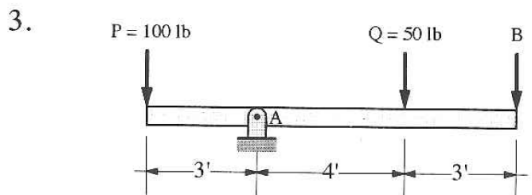
$$B = P = 100 \text{ lb}$$



$$\underline{\Sigma M_A = 0}$$

$$7P - 3B = 0$$

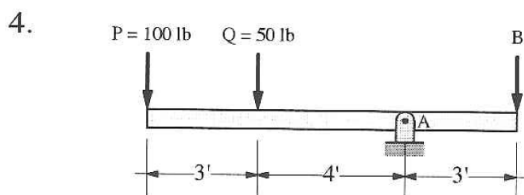
$$B = \frac{7}{3}P = 233 \text{ lb}$$



$$\underline{\Sigma M_A = 0}$$

$$3P - 4Q - 7B = 0$$

$$B = \frac{3P - 4Q}{7} = 14.28 \text{ lb}$$

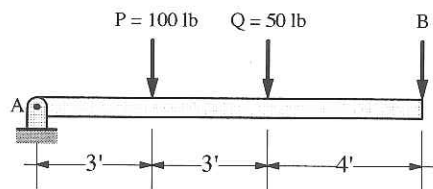


$$\underline{\Sigma M_A = 0}$$

$$7P + 4Q - 3B = 0$$

$$B = \frac{7P + 4Q}{3} = 300 \text{ lb}$$

5.

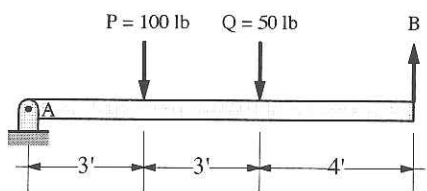


$$\underline{\Sigma M_A = 0}$$

$$-3P - 6Q - 10B = 0$$

$$B = \frac{3P + 6Q}{-10} = -60 \text{ lb}$$

6.

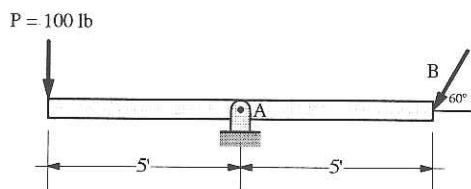


$$\underline{\Sigma M_A = 0}$$

$$-3P - 6Q + 10B = 0$$

$$B = \frac{3P + 6Q}{10} = 60 \text{ lb}$$

7.



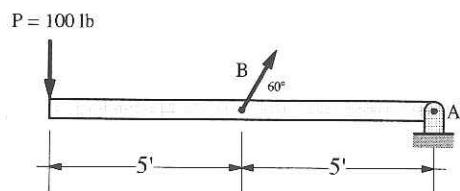
$$\underline{\Sigma M_A = 0}$$

$$5P - 5B_y = 0$$

$$B \sin 60 = P$$

$$B = \frac{P}{\sin 60} = 115.4 \text{ lb}$$

8.



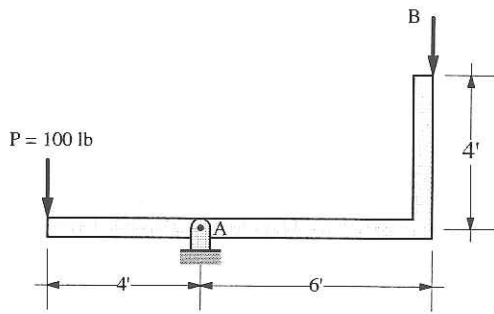
$$\underline{\Sigma M_A = 0}$$

$$P(10) - B_y(5) = 0$$

$$B \sin 60 = 2P$$

$$B = 230.9$$

9.

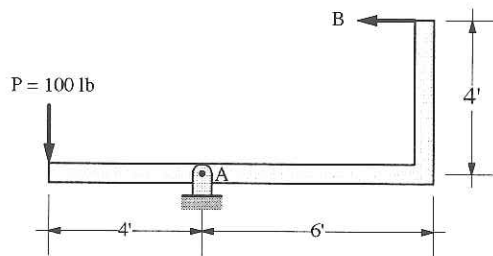


$$\underline{\Sigma M_A = 0}$$

$$P(4) - B(6) = 0$$

$$B = \frac{2}{3}P = 66.6 \text{ lb}$$

10.

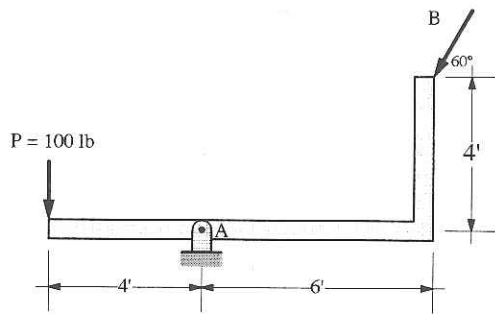


$$\Sigma M_A = 0$$

$$P(4) + B(4) = 0$$

$$B = -P = -100 \text{ lb}$$

11.



$$\underline{\Sigma M_A = 0}$$

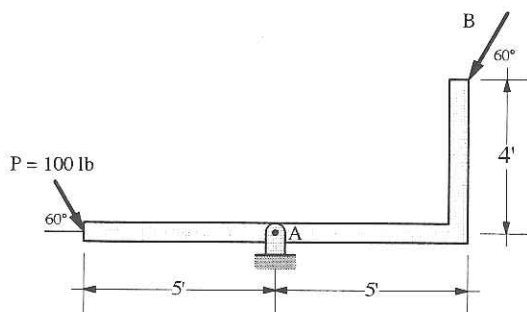
$$P(4) + B_x(4) - B_y(6) = 0$$

$$(B \sin 60)(6) - (B \cos 60)(4) = 4P$$

$$B(6 \sin 60 - 4 \cos 60) = 4P$$

$$B = 125 \text{ lb}$$

12.



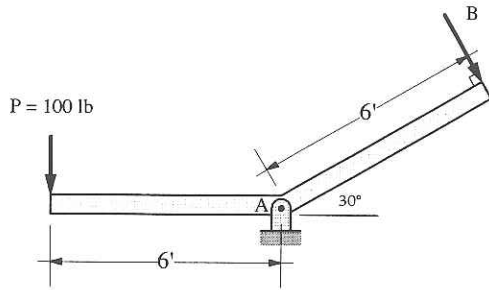
$$\underline{\Sigma M_A = 0}$$

$$P_y(5) + B_x(4) - B_y(5) = 0$$

$$B(5 \sin 60 - 4 \cos 60) = (P \sin 60)(5)$$

$$B = 186 \text{ lb}$$

13.

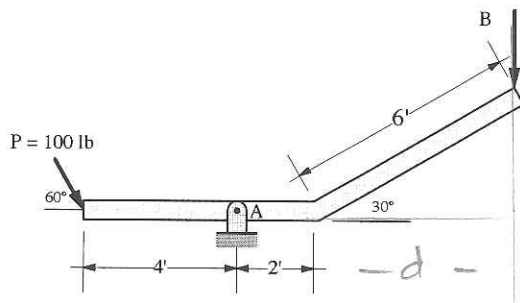


$$\underline{\Sigma M_A = 0}$$

$$P(6) - B(6) = 0$$

$$P = B = 100 \text{ lb}$$

14.



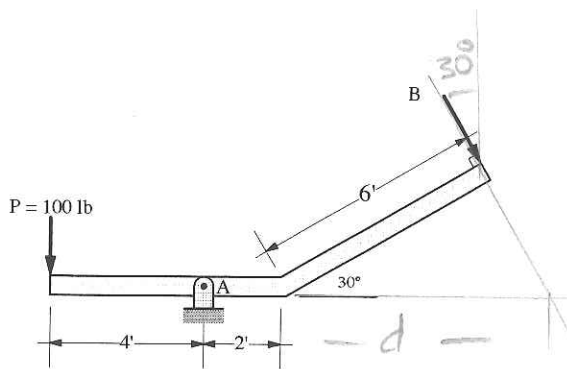
$$\underline{\Sigma M_A = 0}$$

$$P_y(4) - B(2 + d) = 0$$

$$B(2 + 6 \cos 30) = P \sin 60 (4)$$

$$B = 48.1 \text{ lb}$$

15.



$$\underline{\Sigma M_A = 0}$$

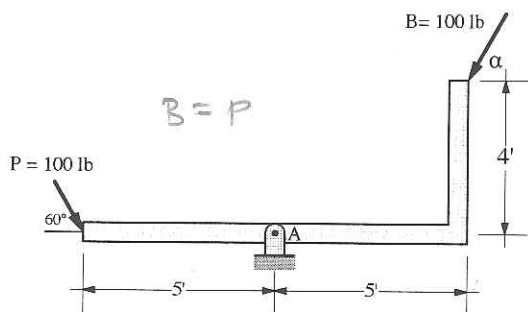
$$P(4) - B_y(2 + d) = 0$$

$$(B \cos 30)(2 + \frac{6}{\cos 30}) = P(4)$$

$$B = 51.7 \text{ lb}$$

$$\frac{6}{d} = \cos 30$$

16.



$$\underline{\Sigma M_A = 0}$$

$$P_y(5) + B_x(4) - B_y(5) = 0$$

$$B(5 \sin \alpha - 4 \cos \alpha) = (P \sin 60)(5)$$

$$\alpha = 81.2^\circ$$