Name : _____ Score : _____

Midpoint Formula

Sheet 2

Example: The endpoints of the line segment are (9, –5) and (–7, 11); the midpoint is (m, 3). Find the value of the unknown.

$$\textbf{Midpoint} = \left(\frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2}\right) \Rightarrow (m, 3) = \left(\frac{9 - 7}{2}, \frac{-5 + 11}{2}\right)$$

$$\Rightarrow m = \left(\frac{9 - 7}{2}\right), \; 3 = \left(\frac{-5 + 11}{2}\right) \Rightarrow 2m = 9 - 7, \; 6 = -5 + 11$$

m = 1

The endpoints and the midpoint are given. Find the value of the unknown.

1) Endpoints : (–4, 7) (k, –11), (7, –3)
Midpoint : (–1, –10, y)

b = _____ y = _____

3) Endpoints : (1, p), (–2, 4), (–8, t)
Midpoint : (q, 7) (–5, –3)

p = _____ , q =

5) Endpoints : (k, 12) (u, 1), (–4, –1)
Midpoint : (–3, 2) (4, v)

k = _____ u = _____ , v = _____

7) Endpoints : (–6, 8), (4, c)
Midpoint : (d, 5)

c = _____ , d = _____

8) Endpoints : (7, n), (m, 4)
Midpoint : (–2, 3)

m = _____ , n = _____