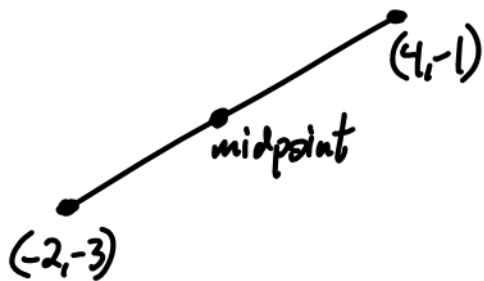


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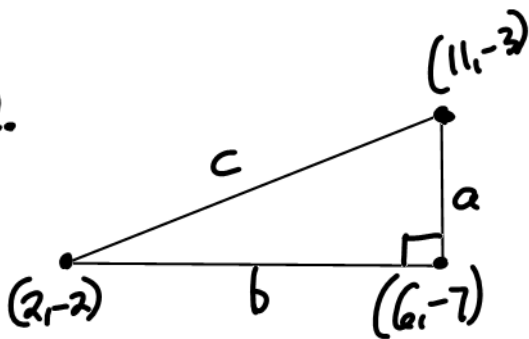
24.



$$\text{distance} = \sqrt{6^2 + 2^2} = \boxed{\sqrt{40} = 2\sqrt{10}}$$

$$\text{midpoint} = \left(\frac{4-2}{2}, \frac{-1-3}{2} \right) = \boxed{(1, -2)}$$

42.



$$a = \sqrt{5^2 + 4^2} = \sqrt{41}$$

$$b = \sqrt{4^2 + 5^2} = \sqrt{41}$$

$$c = \sqrt{9^2 + 1^2} = \sqrt{82}$$

$a^2 + b^2 = c^2$ so the triangle is a right triangle with side c as the hypotenuse.

$$\text{Area} = \frac{1}{2} \sqrt{41} \sqrt{41} = \frac{41}{2} = \boxed{20.5}$$