ERROR ANALYSIS *Describe* **and correct the error in finding the distance between (−17, −2) and (3, 8), and the midpoint of the line segment with endpoints (−17, −2) and (3, 8).**

35.

Distance:

$d = \sqrt{(3 - (-17))^2 - (8 - (-2))^2}$

$= \sqrt{400 - 100}$

$= \sqrt{300} = 10\sqrt{3}$

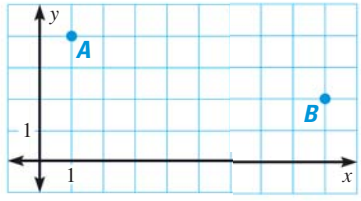
36.

Midpoint:

$\left(\frac{3 - (-17)}{2}, \frac{8 - (-2)}{2}\right) = \left(\frac{20}{2}, \frac{10}{2}\right)$

$= (10, 5)$

37. **TAKS REASONING** What is the distance between point A and the midpoint of the line segment that joins points A and B?



Ⓐ $\sqrt{17}$ units Ⓑ $3\sqrt{5}$ units

Ⓒ $2\sqrt{17}$ units Ⓓ $\sqrt{117}$ units

FINDING ENDPOINTS **The midpoint and an endpoint of a line segment are given. Find the other endpoint.**

38. endpoint: (1, 2)
midpoint: (−6, 4)

39. endpoint: (−2, −4)
midpoint: (3, −3)

40. endpoint: (7, 5)
midpoint: (1, 0.5)

RIGHT TRIANGLES **Use the distance formula and the converse of the Pythagorean theorem to determine whether the points are vertices of a right triangle.**

41. (3, 5), (3, −1), (−2, −1)

42. (3, −1), (1, 4), (−3, 0)

43. (−5, −2), (0, −4), (−2, 3)

44. (−2, 1), (−4, 3), (−8, −1)

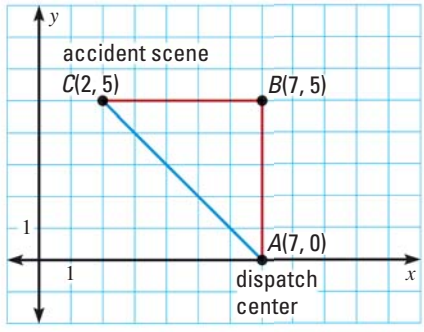
45. **WRITING** *Explain* how you can use the distance formula to verify that the midpoint of a line segment is equidistant from its endpoints.

46. **CHALLENGE** The midpoint of a line segment is (0, 0). The line segment has a length of 2 units. Give three possible sets of endpoints for the line segment. *Explain* how you found your answer.

PROBLEM SOLVING

EXAMPLE 4
on p. 746
for Exs. 47–50

47. **MULTI-STEP PROBLEM** A rescue helicopter and an ambulance are both traveling from the dispatch center to the scene of an accident. The distance between consecutive grid lines represents 1 mile.



a. Find the distance that the ambulance traveled (red route).

b. How many times greater is the distance that the ambulance traveled than the distance that the helicopter traveled (blue route)?

TEXAS @HomeTutor for problem solving help at classzone.com

= WORKED-OUT SOLUTIONS on p. WS1

= TAKS PRACTICE AND REASONING