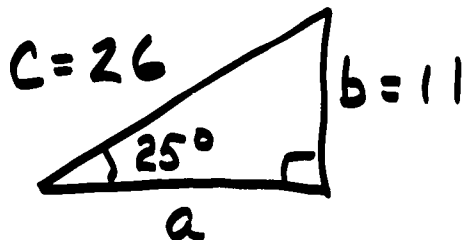


Alg. 1-BE WEDNESDAY 3-16-11

① Find  $a$  and  $m\angle A$ . (EXACT ANSWERS)



② Simplify: (A)  $\sqrt{40}$

(B)  $3\sqrt{18}$

(C)  $5\sqrt{56}$

③ Solve:  $4\sqrt{2x+1} - 3 = 17$

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• LIST OF EXPONENT RULES  
is on [bulldogmath.com](http://bulldogmath.com)

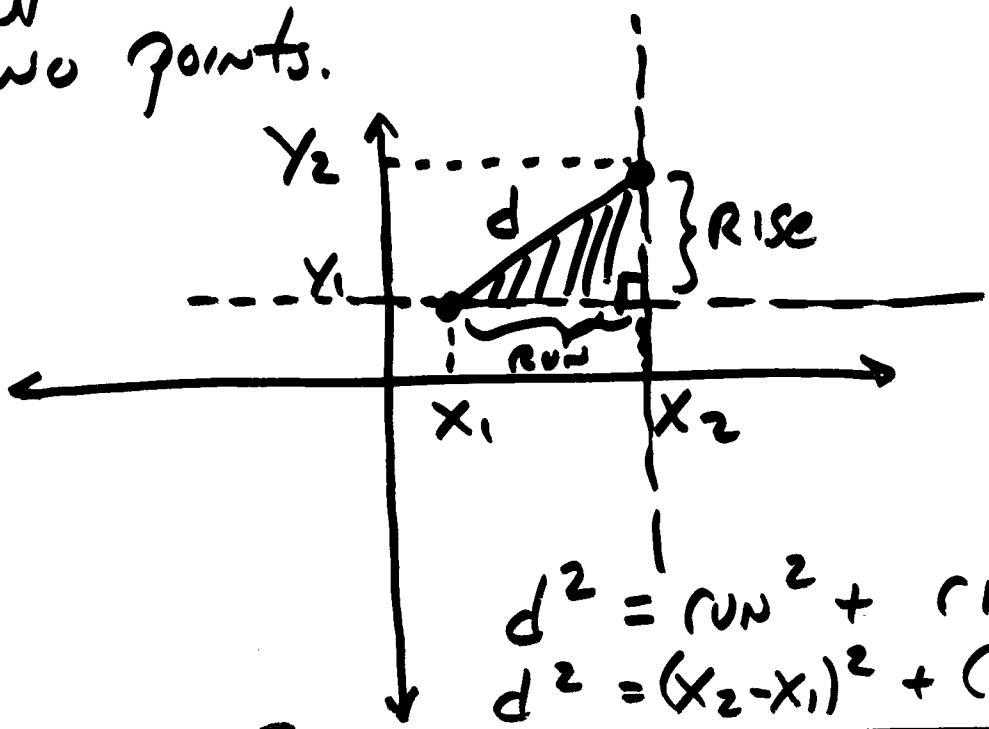
• Homework reviews: Pg. 608 #13-37  
every third

# Ch. 11-5 The Distance Formula

If you know two points on the x-y coordinate plane, the "slope triangle" between them is a right triangle,  $\therefore$  you can use the rise and run and the

$(y_2 - y_1)$                    $(x_2 - x_1)$

PYTHAGOREAN THEOREM to find the hypotenuse  $\Rightarrow$  the distance between the two points.



$$d^2 = \text{run}^2 + \text{rise}^2$$

$$d^2 = (x_2 - x_1)^2 + (y_2 - y_1)^2$$

The Distance Formula:

$$d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$$

EX1  
pg 611

Find distance between

$$(2, 3), (-4, 6)$$

$$\text{rise} = 6 - 3 = 3$$

$$\text{run} = -4 - 2 = -6$$

$$d = \sqrt{\text{rise}^2 + \text{run}^2}$$

$$d = \sqrt{3^2 + (-6)^2}$$

$$d = \sqrt{9 + 36} = \sqrt{45} = \sqrt{9 \cdot 5}$$

$$d = 3\sqrt{5} \quad \text{EXACT}$$

$$d \approx 6.7 \quad \text{APPROXIMATE}$$

You can solve a radical equation  
to find a missing coordinate...

Ex 3 Find if the distance  
P9612 between point  $(7, 5)$  and  
 $(a, -3)$  is 10 units.

$$d = \sqrt{(y_2 - y_1)^2 + (x_2 - x_1)^2}$$

$(7, 5), (a, -3)$

$$10 = \sqrt{(-8)^2 + (a - 7)^2}$$

$$100 = 64 + a^2 - 14a + 49$$

$$a^2 - 14a + 13 = 0$$

$$(a - 1)(a - 13) = 0$$

$$a = 1, 13$$

$$\begin{array}{l} S \Rightarrow -14 \\ P \Rightarrow 13 \\ -1 \quad 1 \\ -13 \end{array}$$

CK  $a = 1$       $10 = \sqrt{64 + (1 - 7)^2}$

$$10 = \sqrt{64 + 36} \quad \checkmark$$

CK  $a = 13$       $10 = \sqrt{64 + (13 - 7)^2} \quad \checkmark$

$$a = \{1, 13\}$$

AN UNRELATED BUT SIMILAR TYPE OF  
FORMULA  $\Rightarrow$  The Midpoint Formula.

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The midpoint coordinates of two  
points  $(x_1, y_1), (x_2, y_2)$  ARE:

$$\left( \frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2} \right)$$


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$\uparrow$   
THE AVERAGE  
OF THE X'S

$\uparrow$   
AVG. OF Y'S

---

EX) FIND MIDPOINT OF  $(2, -3), (5, 8)$

$$M \Rightarrow \left( \frac{5+2}{2}, \frac{8+(-3)}{2} \right)$$

$$M = \left( \frac{7}{2}, \frac{5}{2} \right)$$


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Homework: Pg 613 # 13-17 Find D; M  
plus # 29.