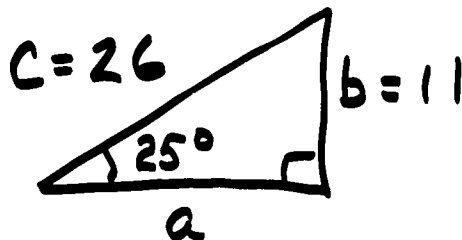


Alg. I - BE WEDNESDAY 3-25-09

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



- ② Simplify:
- Ⓐ $\sqrt{40}$
 - Ⓑ $3\sqrt{18}$
 - Ⓒ $5\sqrt{56}$

③ Solve: $4\sqrt{2x+1} - 3 = 17$

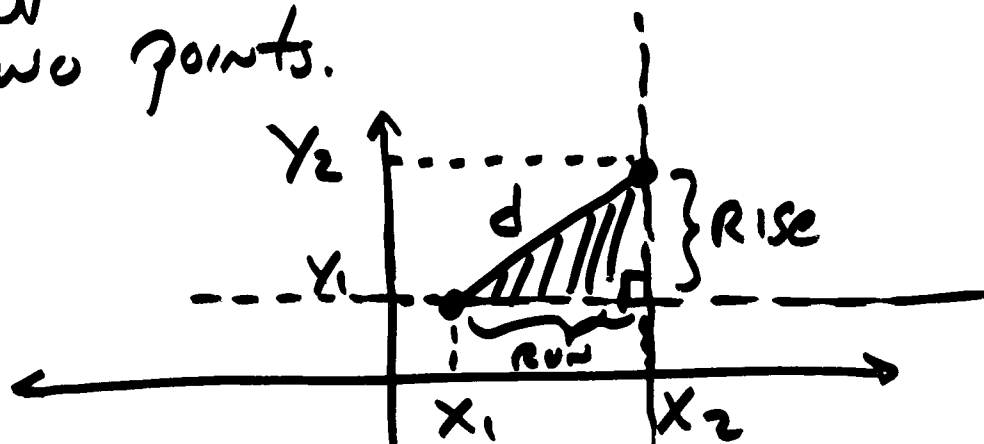
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- List of exponent rules is on bulldogmath.com
 - Homework review: Pg. 608 #13-37 every third

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:

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

Ex 1
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
Pg 612 between point $(7, 5)$ and
 $(a, -3)$ is 10 units.

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

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

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

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

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

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

$$a = 1, 13$$

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

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.

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

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

$\nwarrow$
THE AVERAGE
OF THE x 's

$\nearrow$
AVG OF y 's

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

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

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

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