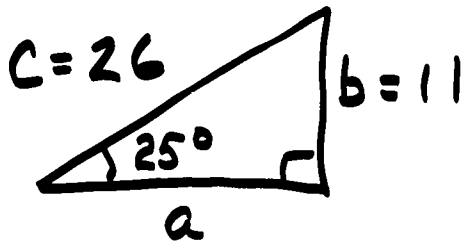
Alg. 1-BE WEDNESDAY 3-14-12

① Find a and $m\angle A$. (Exact answers)



② Simplify: (A) $\sqrt{40}$

(B) $3\sqrt{18}$

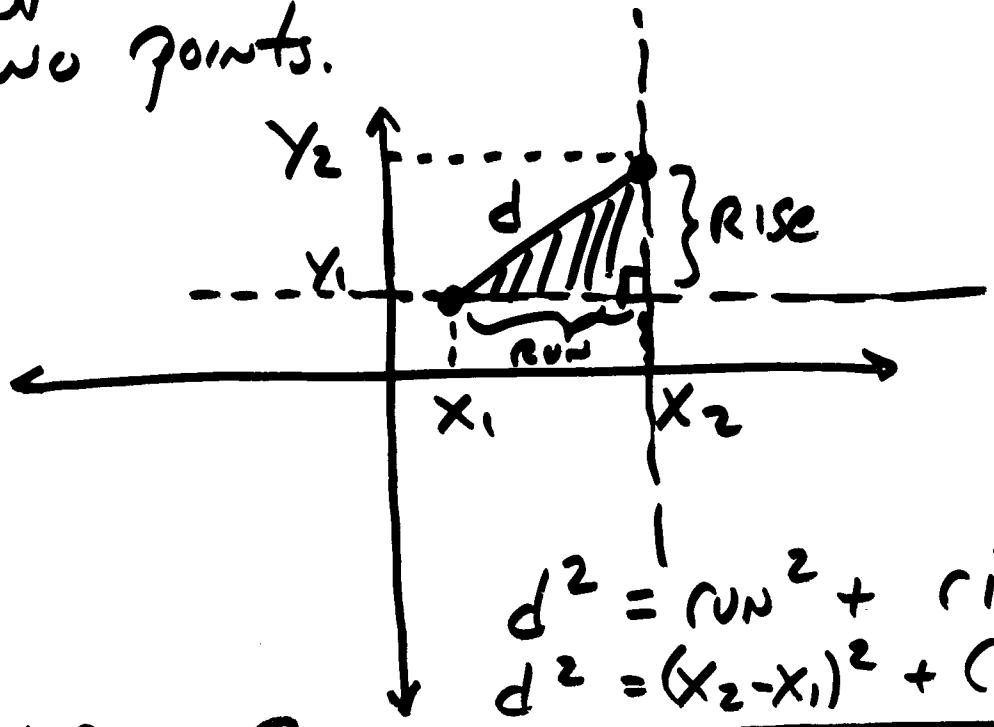
(C) $5\sqrt{56}$

③ Solve: $4\sqrt{2x+1} - 3 = 17$

- 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 triange, ∴ you can use the rise and run and the (Y_2-Y_1) (X_2-X_1) Pythagorean Theorem to find the hypotenuse ⇒ the distance between the two points.



$$d^2 = run^2 + rise^2$$

$$d^2 = (X_2-X_1)^2 + (Y_2-Y_1)^2$$

The Distance Formula: $$d = \sqrt{(X_2-X_1)^2 + (Y_2-Y_1)^2}$$

EX1 pg611 Find distance between $(2,3), (-4,6)$

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

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

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

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

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

$d = 3\sqrt{5}$ EXACT

$d \approx 6.7$ APPROXIMATE

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

Ex3 Pg612 Find if the distance 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)

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

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

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

S ⇒ -14
P ⇒ 13
-1, -13

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

$$a = 1, 13$$

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

$10 = \sqrt{64+36}$ ✓

Ck a=13 $10 = \sqrt{64+(13-7)^2}$ ✓

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

An unrelated but similar type of formula ⇒ The Midpoint Formula.

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

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

↑ The average of the x's ↑ avg of y's

Ex) Find midpoint of $(2,-3), (5,8)$

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

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

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