Good morning!

1. "Here"

2. Notes and Practice proving algebraically

3. Homework is on DeltaMath

$5^2 = 25$

$+11$

$6^2 = 36$

$5+6=11$

$15^2 = 225$

$+31$

$16^2 = ?\ 256$

$15+16=31$

$20^2 = 400$

$+41$

$21^2 = 441$

$+43$

$22^2 = 484$

$+45$

$23^2 = 529$

$20+21=41$

Geometry in the Coordinate Plane

Name: _____ Date: _____

Algebra Proofs

Distance Formula: $d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$ Midpoint: $\left(\frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2}\right)$

1. Quadrilateral ABCD has vertices A(–1, 3), B(3, 5), C(4, 3), and D(0, 1). Is ABCD a rectangle?

2. Do these points form a parallelogram? A (3, 1); B (-1, -2); C (-4, -2); D (-2, 1)

3. Circle C has a center of (–2, 3) and a radius of 4. Does point (–4, 6) lie on circle C?

4) Find the point P that partitions the segment between points E (1,7) and F(11,-3) into a 3:2 ratio.

5. Do the points A(-1, 1) , B(1, -4) and C(-4, -4) form an isosceles triangle?

Geometry in the Coordinate Plane

$$distance = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2} \qquad midpoint = \left(\frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2}\right)$$

6. A circle has a diameter with endpoints (-2, 6) and (4, 0). Find the center and radius of the circle.

7. Point C is the **midpoint** between points A and B. If point C is at (-4, 10) and Point A is (4, 8), what is the Point B?

8. Circle C has a center of (–2, 3) and a radius of $3\sqrt{2}$. Does point (–5, 6) lie on circle C?

9. A circle is centered at (5, 3) and has a radius of 4. Does the point (2.5, 6) lie on the circle?

Name: _____ Date: _____

Algebra Proofs Practice

$$distance = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2} \qquad midpoint = \left(\frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2}\right)$$

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Distance Formula: $d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$ Midpoint: $\left(\frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2}\right)$

1. Quadrilateral ABCD has vertices A(−1, 3), B(3, 5), C(4, 3), and D(0, 1). Is ABCD a rectangle?

1) Prove Parallelogram
2) Prove Rectangle

$\overline{AB} \cong \overline{CD}$ $\overline{BC} \cong \overline{DA}$

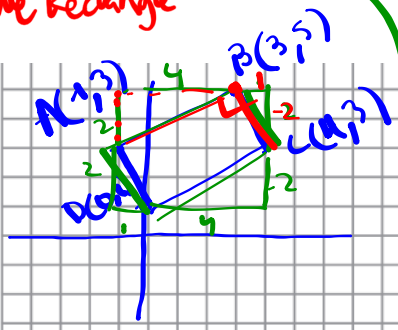
$AB = \sqrt{2^2 + 4^2} = \sqrt{4+16} = \sqrt{20} = 2\sqrt{5}$

$CD = \sqrt{(2)^2 + 4^2} = 2\sqrt{5}$

$BC = \sqrt{1^2 + 2^2} = \sqrt{1+4} = \sqrt{5}$

$DA = \sqrt{1^2 + 2^2} = \sqrt{5}$

yes it's a rectangle

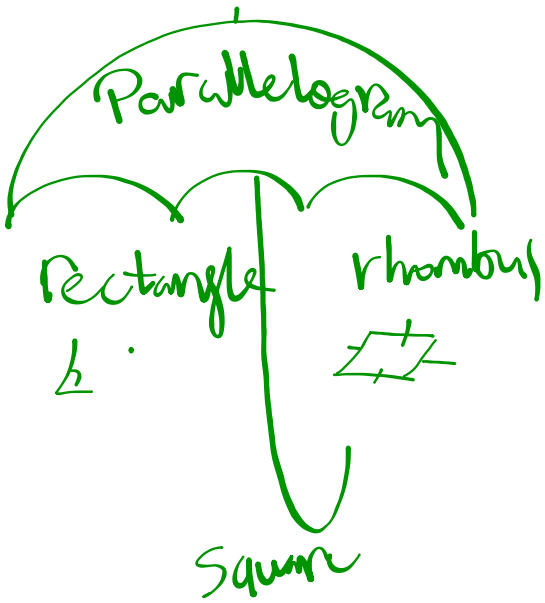


② ⊥ slopes ① Flip fraction ② change sign

Slope $\overline{AB} = \frac{2}{-4} = \frac{1}{2}$

Slope $\overline{BC} = \frac{-2}{1}$ ⊥

① Draw Picture
② Highlight info
③ Choose formula
④ Solve question


Parallelogram
Rectangle
Rhombus
Square

2. Do these points form a parallelogram? A (3, 1); B (-1, -2); C (-4, -2); D (-2, 1)

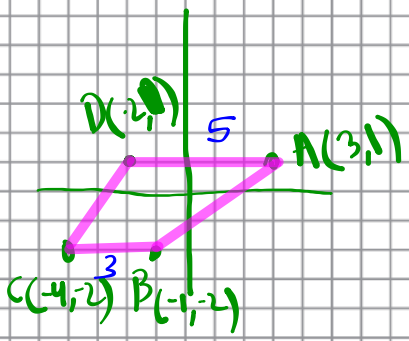
Parallelogram: ① $\overline{DA} \parallel \overline{BC}$ ✓ Slope $\overline{DA} = 0$

② $\overline{DA} \cong \overline{BC}$ X Slope $\overline{BC} = 0$

$DA = 5$ $BC = 3$

↳ NOT Congruent

NOT Parallelogram



① Draw Picture ✓

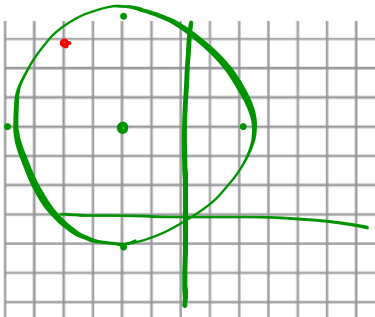
② Highlight info ✓

③ Choose formula ✓

④ Solve question ✓

x y

3. Circle C has a center of (–2, 3) and a radius of 4. Does point (–4, 6) lie on circle C?



$(x-h)^2+(y-k)^2=r^2$

$(x+2)^2+(y-3)^2=16$

$(-4+2)^2+(6-3)^2$

$(-2)^2 \quad (3)^2$

$4+9=$

$13 \neq 16$

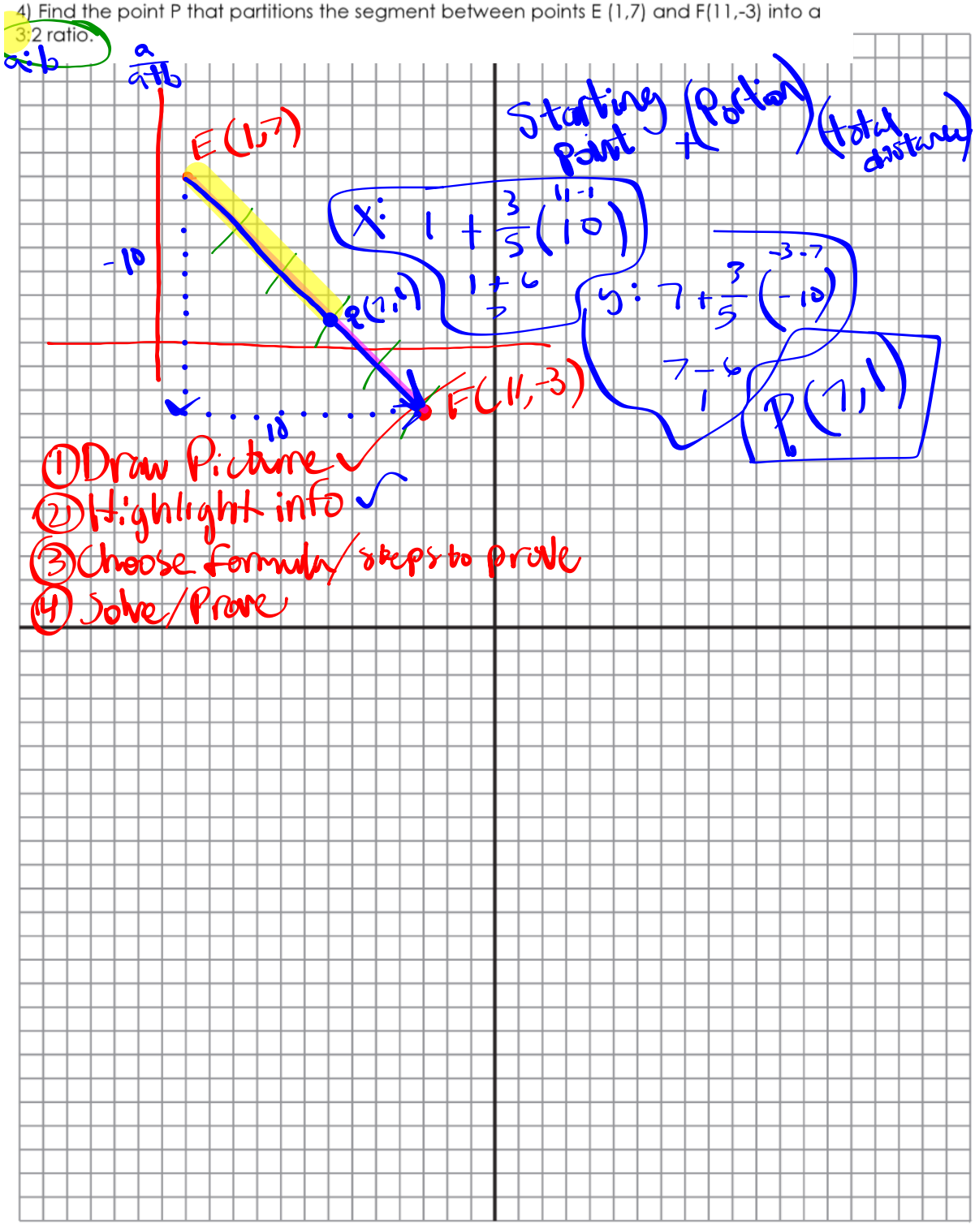
① Draw Picture ✓

② Highlight info ✓

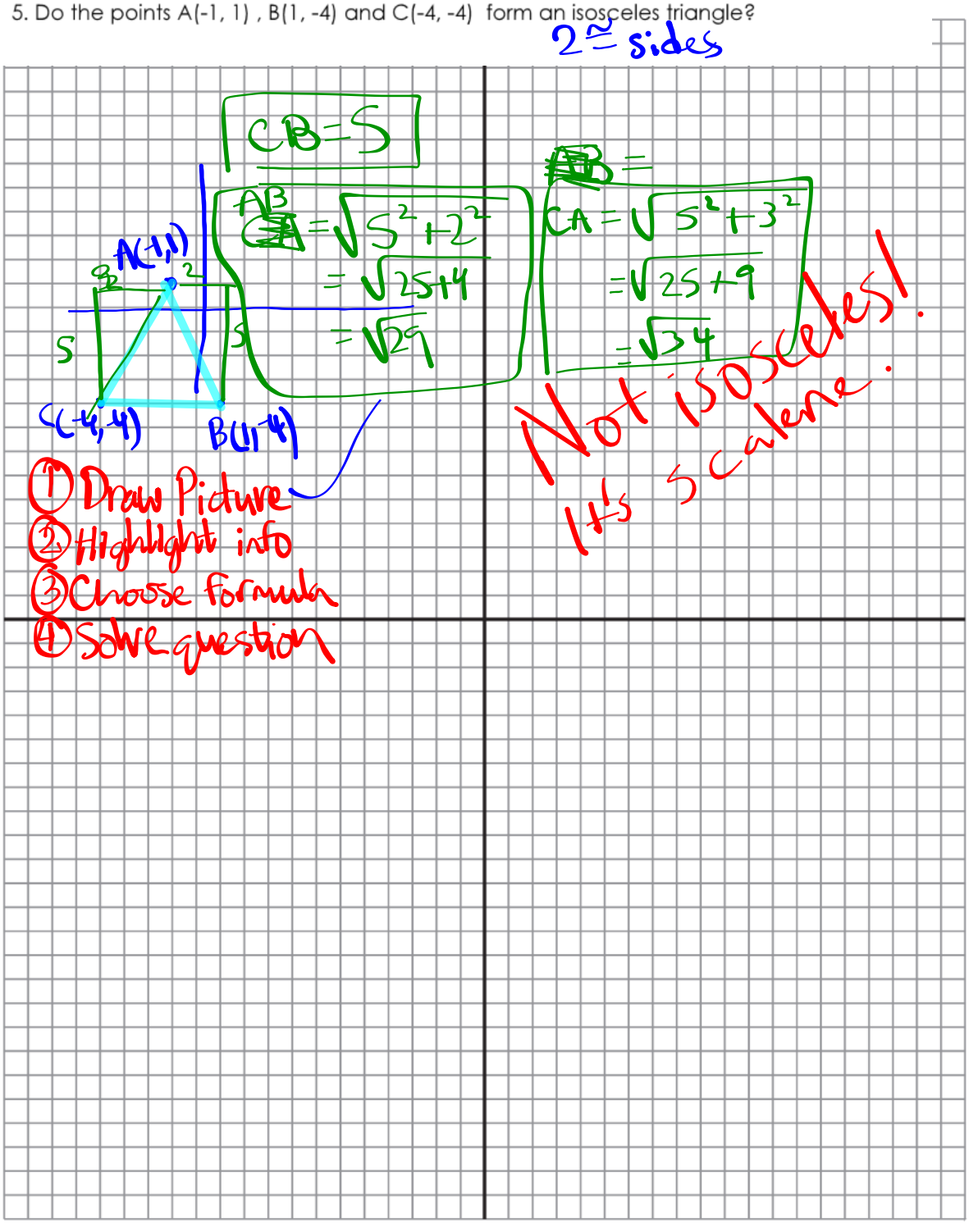
③ Choose formula/steps to prove

④ Solve/Prove

4) Find the point P that partitions the segment between points E (1,7) and F(11,-3) into a 3:2 ratio.

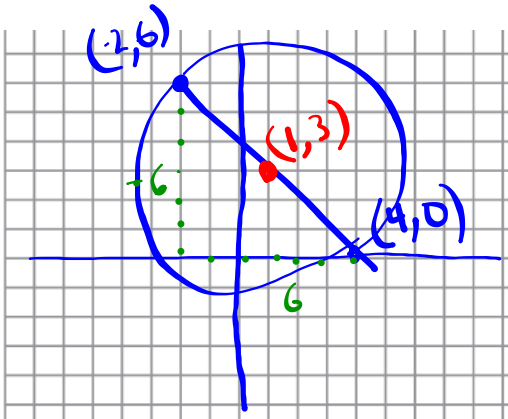


5. Do the points A(-1, 1) , B(1, -4) and C(-4, -4) form an isosceles triangle?



$$\text{distance} = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2} \qquad \text{midpoint} = \left(\frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2}\right)$$

6. A circle has a diameter with endpoints (-2, 6) and (4, 0). Find the center and radius of the circle.



① diameter → radius (Distance)

$= \sqrt{6^2 + 6^2} = \sqrt{36+36} = \sqrt{72} = 6\sqrt{2}$

$36 \cdot 2$

② center (midpoint)

$\left(\frac{-2+4}{2} = \frac{2}{2} = 1, \frac{6+0}{2} = \frac{6}{2} = 3\right)$

$(1,3)$

① Draw Picture
② Highlight info
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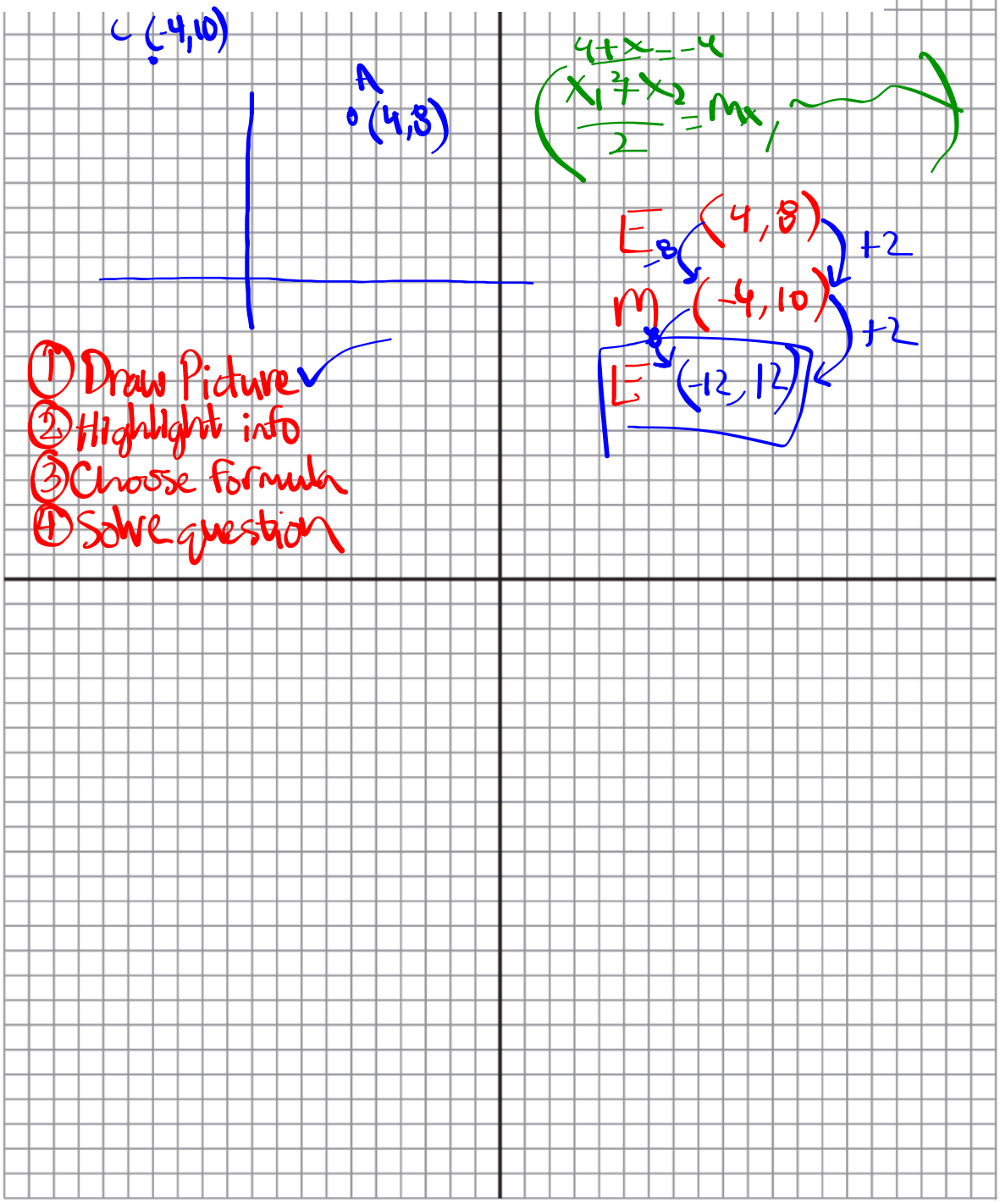

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x y

$(x-h)^2+(y-k)^2=r^2$

$(x+2)^2+(y-3)^2=(3\sqrt{2})^2$

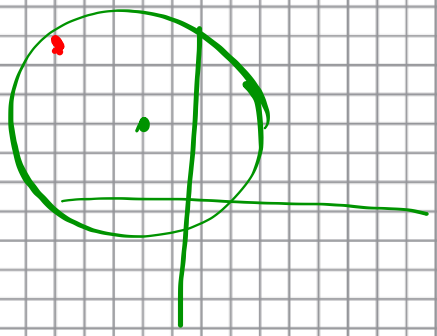
$(-5+2)^2+(6-3)^2$ $9\cdot 2$

$(-3)^2+(3)^2$ 18

$9+9$

$18=18$

Yes, on circle



① Draw Picture
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