Warm-up 1/7/15

1) $\dfrac{\frac{1}{4}+\frac{2}{4}}{2}=$

2) $\dfrac{\left(\frac{3}{5}+\frac{1}{5}\right)}{2}=$
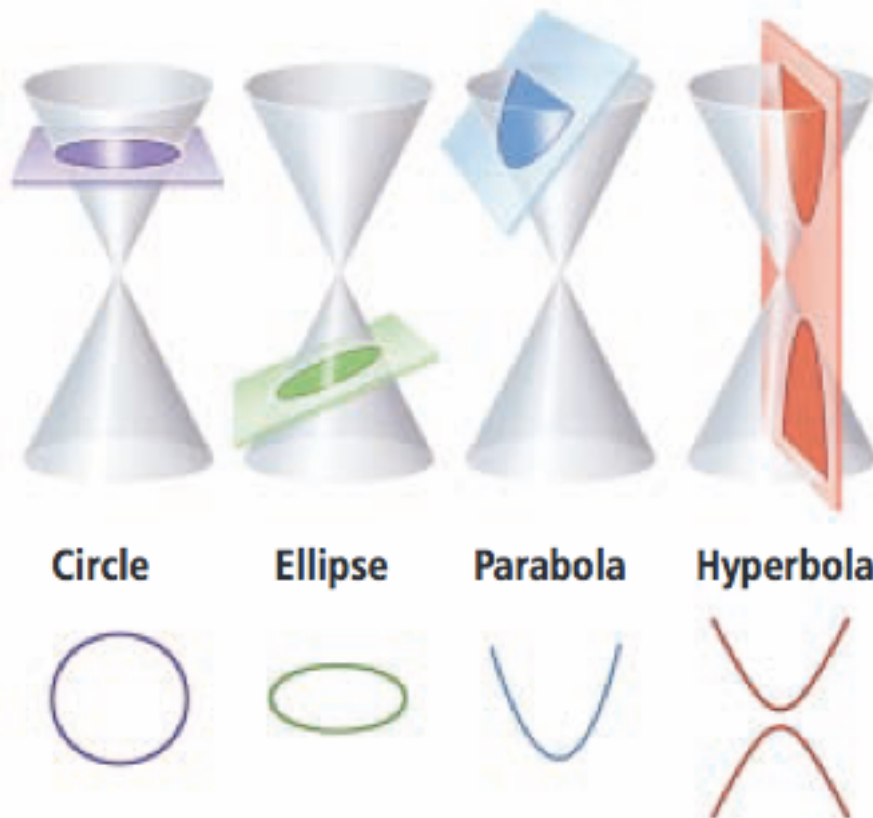
3) $\dfrac{7}{2}+5=$

4) $\sqrt{8^2+6^2}=$

5) $\sqrt{8^2}+\sqrt{6^2}=$

Introduction to the Conic Section
10.1

Conic Sections are formed by the intersection of a double right cone and a plane.

Circle   Ellipse   Parabola   Hyperbola

A Circle is the set of points in a plane that are a fixed distance from the center.

An Ellipse is the set of points in a plan such that the sum of the distances from any point P on the ellipse to two fixed points called the Foci.

A Hyperbola is the set of points in a plane such that the difference from P to the fixed points is constant.

A parabola is the set of all points in a plane that are an equal distance from both a fixed point, the focus, and a fixed line the directrix.

Find the center and radius of a circle that has a diameter of the given endpoints (3,12) and (9,4).
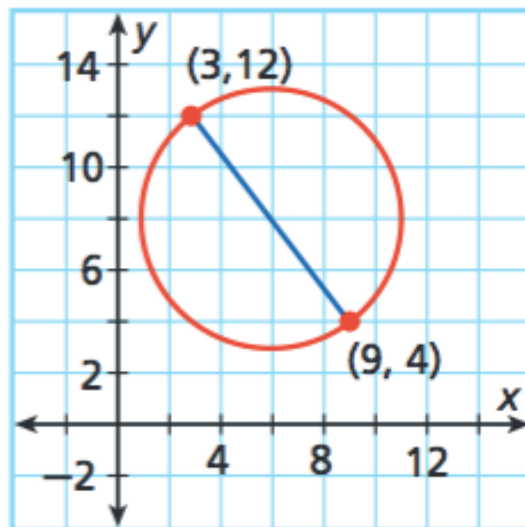
What is the relationship of the center with the two endpoints (3,12) and (9,4)? What formula would we use to find the center?

We would use the midpoint formula to find the center.

Midpoint Formula

Given (X_1,Y_1), (X_2,Y_2)

$$\text{Midpoint} = \left(\frac{X_1+X_2}{2}, \frac{Y_1+Y_2}{2}\right)$$

Find the center of $(3,12)$ and $(9,4)$

Plug into Equation	Midpoint = $\left(\frac{X_1+X_2}{2}, \frac{Y_1+Y_2}{2}\right)$ $$\left(\frac{3+9}{2}, \frac{12+4}{2}\right)$$
Simplify	$\left(\frac{12}{2}, \frac{16}{2}\right)=$ $(6,8)$

The midpoint and center is at (6,8).

What is the radius and how do we find it?
How do we find the radius?

The radius is the distance from the center to an endpoint. To find it, we could use the center and the endpoint and find the distance between the two.

We would use the ***Distance formula***!
Given points (X_1, Y_1), (X_2, Y_2)

$$distance = \sqrt{(X_2 - X_1)^2 + (Y_2 - Y_1)^2}$$

Given center (6,8) and endpoint (9,4) Find the distance between them.

Plug into Equation	$\sqrt{(X_2 - X_1)^2 + (Y_2 - Y_1)^2}$
	$\sqrt{(9 - 6)^2 + (4 - 8)^2}$
Simplify	$\sqrt{(3)^2 + (-4)^2}$ $\sqrt{(9) + (16)}$ $\sqrt{25}$ 5

The radius is 5.

We try:

1)

Find the center and radius of a circle given diameter endpoints,(-4,1) and (-16,-8)

Center

Plug into Equation	
Simplify	

Radius

Plug into Equation	
Simplify	

We Try:

2) Find the center and radius of the circle with diameter endpoints $\left(\frac{9}{2},\frac{5}{2}\right), and \left(\frac{5}{2},\frac{17}{2}\right).$

Center

Plug into Equation	
Simplify	

Radius

Plug into Equation	
Simplify	

You try in your notebooks:

1) Find the center and radius of the circle with diameter endpoints $(-9, -3), and (15, -3)$.

Closure 3,2,1
Directions:
On your notes. Take about 2 minutes to:
Write 3 conic shapes you learned about today.
Write 2 formulas we used today
Write 1 part of the circle we can find given two endpoints that form the diameter a circle.

Be prepared to share out loud.

Exit Slip

Take out half a piece of paper.
Find the center of a circle that has a diameter
with the given endpoints.
 (-4,1) and (2,9)