

Week 1 Homework

Parabolas - For the following equations:

- What is the vertex?
- What are the x-intercepts?
- Graph the equations to the best of your ability

1.  $Y = x^2 + 2x - 8$                       2.  $Y = (x - 3)^2 - 2$

Circles -

1.  $(x + 3)^2 + (y - 2)^2 = 3^2$                       2. The center of a circle is  $(-3,6)$ . The radius is 5. What is the equation? Graph it

Try graphing the circle without manipulating the equation

For the following coordinates, write the equations and results for:

- Slope, Slope intercept form, Midpoint and Distance

$(2,-5) (-3,5)$                        $(3,5)(-2,-7)$                        $(1,4)(-3,-6)$

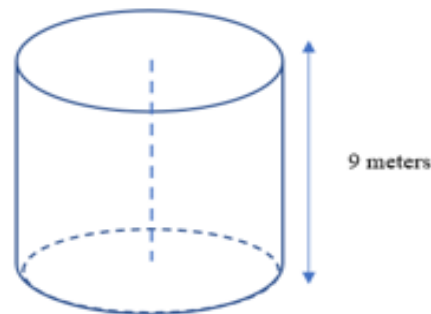
1. Come up with your own parallel line (graph the set of lines)
2. Come up with your own perpendicular line (graph the set of lines)

Graph these linear equations, **highlight** your solution –

1.  $Y \geq -3x + 5$                       2.  $Y \leq 4$                       3.  $Y \geq 3/2x - 4$

In the  $xy$ -plane, a parabola defined by the equation  $y = (x - 6)^2$  intersects the line defined by the equation  $y = 49$  at two points,  $P$  and  $Q$ . What is the length of  $PQ$ ?

- A. 6
- B. 11
- C. 14
- D. 16



A rice farmer uses a storage silo that is in the shape of the right circular cylinder above. If the volume of the silo is  $81\pi$  cubic meters, what is the diameter of the cylinder in meters?

A line in the  $xy$ -plane passes through the origin and has a slope of  $1/8$

Which of the following points lies on the line?

- A)  $(0, 8)$
- B)  $(1, 8)$
- C)  $(8, 8)$
- D)  $(24, 3)$

The diameter of a circle has endpoints at  $(2,10)$  and  $(-8, -14)$ . Which of the following DOES NOT lie on the circle?

- A.  $(-8,10)$     B.  $(-8,-12)$     C.  $(9,3)$     D.  $(-15,-7)$     E.  $(2,-14)$