

NAME: _____ Score _____/10

Please **print** your name**SHOW ALL YOUR WORK IN A NEAT AND ORGANIZED FASHION**

1. The formula for the volume of a cone with radius r and height h is $V = \frac{1}{3}\pi r^2 h$.
2. The formula for the area of a circle with radius r is $A = \pi r^2$.
3. Write the equation of the line through the point $(3, k)$ with slope w . Your answer should be in slope-intercept form.

Use the point-slope form of the equation of a line $y - y_1 = m(x - x_1)$

$$y - k = w(x - 3)$$

$$y = wx - 3w + k$$

$$y = wx + (k - 3w)$$

4. Find the midpoint of the line segment joining $(3, 2)$ and $(5, 7)$.

Use the formula midpoint is $\left(\frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2}\right)$

$$\text{The midpoint is } \left(\frac{3+5}{2}, \frac{2+7}{2}\right) = \left(4, \frac{9}{2}\right)$$

5. Write the equation of the circle with center $(3, 4)$ and radius 5.

Use the formula $(x - h)^2 + (y - k)^2 = r^2$ to obtain

$$(x - 3)^2 + (y - 4)^2 = 5^2$$