Unit 11 Review **Secondary 3 Honors**

Do this assignment on your own paper. Show work on all problems.

Bookwork: **p. 462 51, 52, 55, 67, 81, 87, 90**
p. 465 15

Solve the following systems. Make sure you can solve using either substitution or elimination.

1. $y = x^2$, $x^2 + y = 8$

2. $y = x + 3$, $x^2 + y^2 = 17$

3. $x^2 - y = 4$, $x^2 + y^2 = 4$

4. The sum of two numbers is 22, and their difference is 12. What are the numbers?

5. A golf ball is hit with an initial velocity of 230 ft/sec at an angle of 25°. Solve algebraically. Show work.
   a. Write a set of parametric equations to model the situation.
   b. Find the height of the ball after 5 seconds.
   c. Find the time when the ball will hit the ground.
   d. After 1.3 seconds, what is the horizontal and vertical height of the ball?
   e. If there is a head wind of 100 ft/sec, where will the ball hit the ground?

6. Sally hits a softball 30 ft. above the ground at a 30° angle with respect to the ground and a velocity of 80 ft.sec.
   a. Write a set of parametric equations to model the situation.
   b. Will the ball clear a 60 ft. wall that is 168 ft away? Solve algebraically. Show work.

7. Convert from polar to rectangular form.
   a. $(2, 210°)$ b. $(-1, -135°)$ c. $\left(-3, -\frac{2\pi}{3}\right)$ d. $\left(0, \frac{5\pi}{4}\right)$

8. Convert from rectangular to polar form. Express using a positive r-value and a positive angle.
   a. $(1, 1)$ b. $(-3, -3)$ c. $\left(1, -\sqrt{3}\right)$ d. $(0, -5)$

9. Convert to polar form.
   a. $x^2 + y^2 = 16$ b. $y = 6$ c. $x = 5$ d. $x^2 + y^2 = 6y$

10. Convert to rectangular form.
    a. $r = 4$ b. $r = 3\sin\theta$ c. $r = 5\cos\theta$

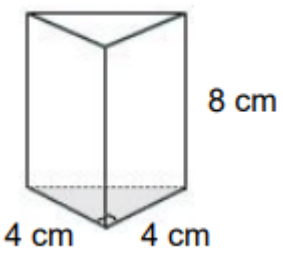
11. Sketch the graph of the polar equation $r = -2 + 3\sin\theta$ by filling in the table below, plotting the points, and connecting them.

θ	0°	30°	60°	90°	120°	150°	180°	210°	240°	270°	300°	330°	360°
r													

12. Graph the following polar equations using your calculator.
    a. $r = 3$ b. $r = 3\sin 4\theta$ c. $r = 2 - 2\sin\theta$ d. $r^2 = 9\sin 2\theta$

13. Find the surface area and volume.

a.



b.