Pre-Calculus 11 **Chapter 9 Review** **Period: _____**

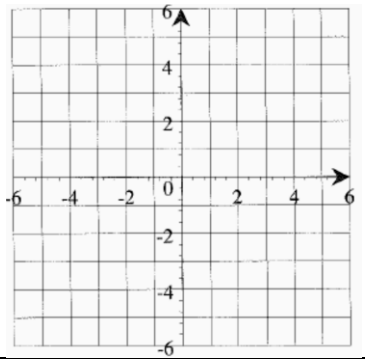
Name: _____ Date: _____

1. Solve the following inequalities.

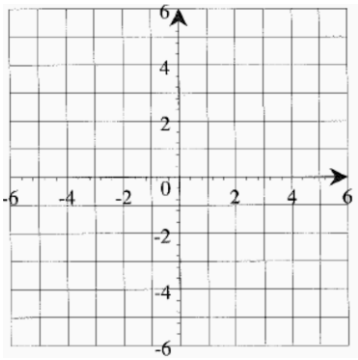
a) $x^2 - 2x - 8 \geq 0$	b) $x(x-5) < 14$
c) $15 - x^2 \geq 2x$	d) $-2x - 2x^2 > 15 - 15x$
e) $(2x-3)^2 \geq 3x + 1$	f) $5x^2 + 3x - 18 > (x+1)(2x-3)$

2. Graph the following inequalities.

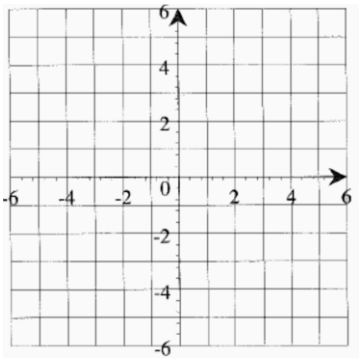
a) $y \geq \frac{2}{3}x - 6$



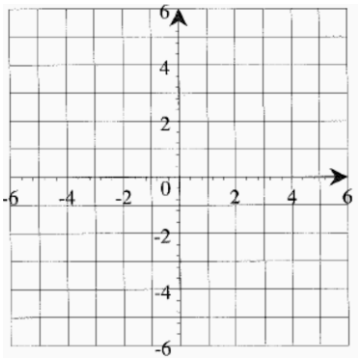
b) $5x - 4y < 20$



c) $0.4x - \frac{2}{3}y > 2$

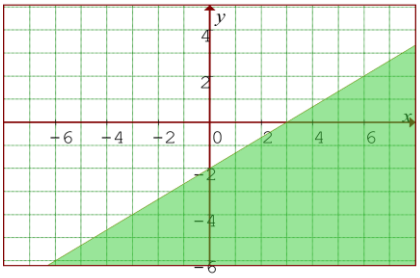


d) $\frac{1}{5}x - \frac{3}{5}y \geq 3$

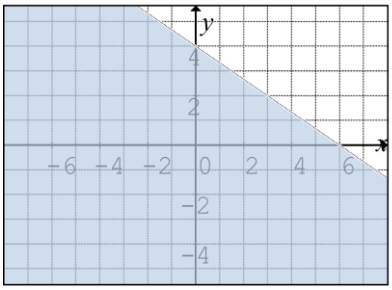


3. Write an inequality to describe each graph.

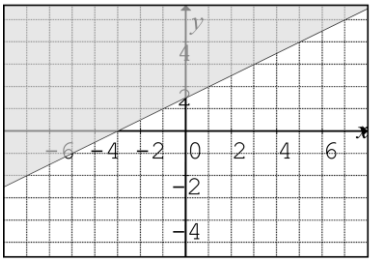
a)



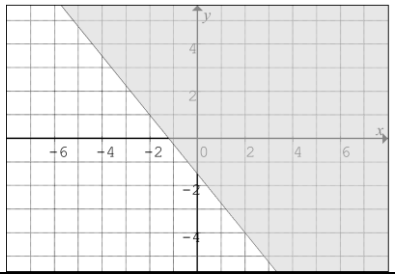
b)



c)



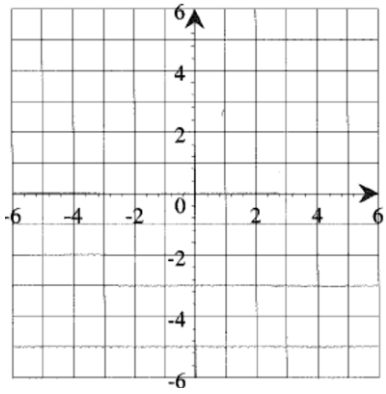
d)



4. Graph the following inequalities.

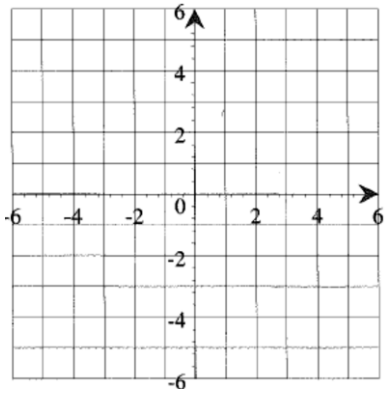
a) $y \geq \frac{5}{2}x + 2$

$y < \frac{1}{2}x - 2$



b) $3x + 2y \geq -6$

$x + 2y < 4$

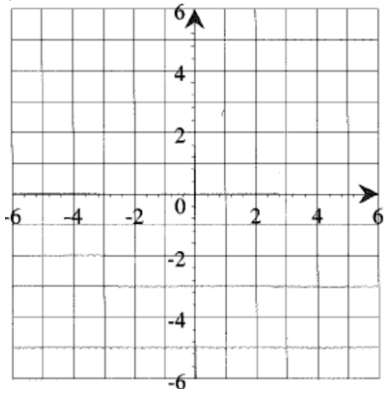


c) $3x + 2y \leq 6$

$4x - 3y > -9$

$y \geq -3$

(Calculate the area of the enclosed region)

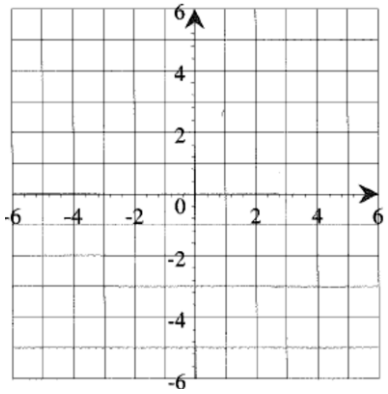


d) $4x + 5y \leq 20$

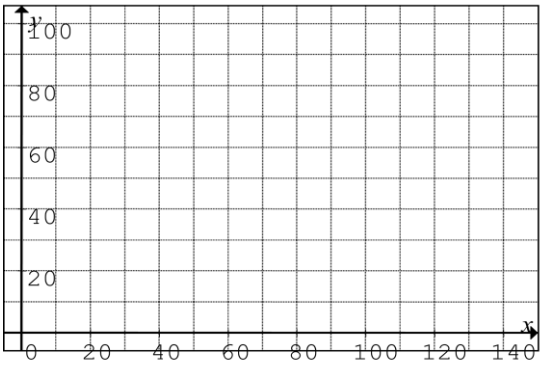
$2x - y < 4$

$x > 0$

$y \geq 0$

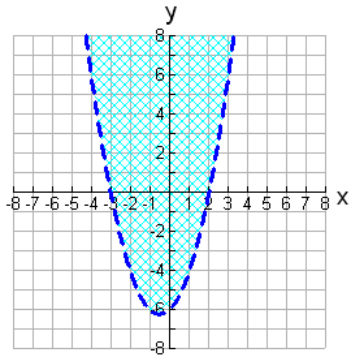


5. Jonny Orchard has 90 hectares of land to produce apples and peaches. It costs him \$250 per hectares to plant x hectares of apples, and \$450 per hectares to plant y hectares of peaches. If no more than \$36 000 is available for planting, Write a system of inequalities to describe the situation and draw a graph to show up to how much Jonny can spend.

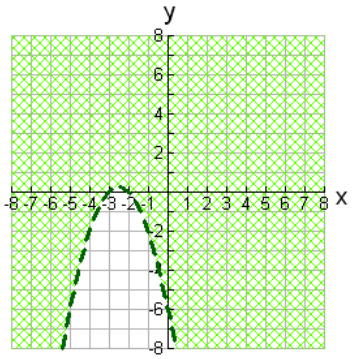


6. Write an inequality to describe each graph.

a)

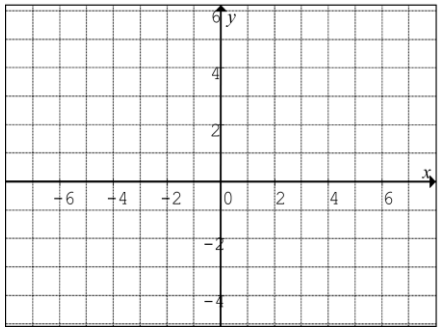


b)

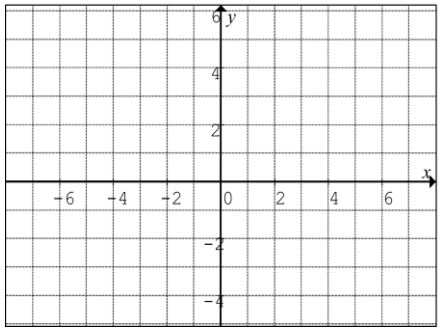


7. Graph the following inequalities.

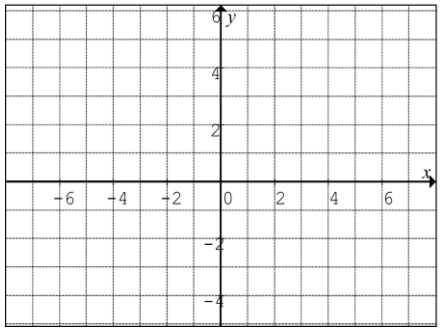
a) $y \geq \frac{1}{2}(x+2)^2 - 4$



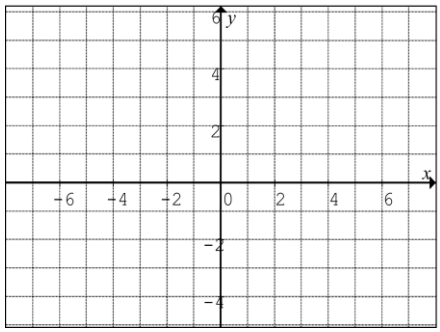
b) $y \geq -x^2 + 4x + 2$



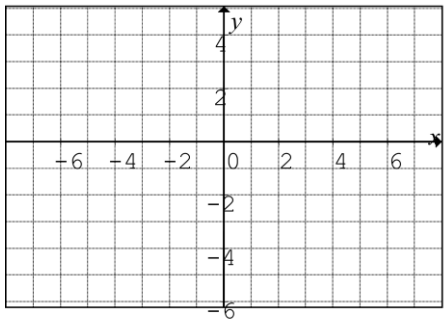
c) $y \leq -2x^2 + 6x + 3$



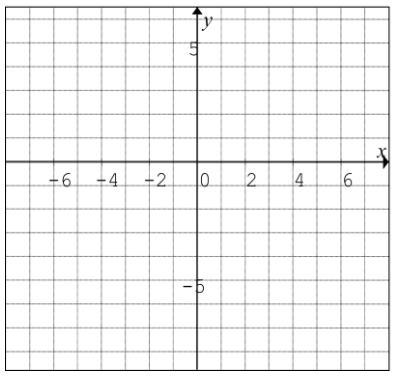
d) $y \leq 4 - x^2$
$y \geq 2x + 1$



e) $y < x^2 - 5$
$y \geq -x^2 + 4x + 1$



f) $y \geq x^2 - 3x - 4$
$y < \frac{1}{2}x^2 - \frac{3}{2}x$



8. Chang's bike shop builds bikes for his customers. His profit margin is determined by the equation $P(x) = -0.2x^2 + 10.8x - 121.6$, where x is the number of bikes he has to sell. How many bikes does he have to sell in order to make a profit?

9. The price, p, in dollars of a product is given by $p(n) = 36 - 0.4n$, $0 \le n \le 90$, where n is the number of units sold each day. The operating cost of the business is \$100 per day, plus \$20 in commission for each item sold.
    a. Find the daily revenue function.
    b. Find the daily operating cost function.
    c. If the daily profit function is given by $P(n) = R(n) - C(n)$, for what values of n will the profit be made?