PC11 Quadratic Inequalities Assignment

Name: _____

1. Sketch $y = 3x + 2$

2. Sketch $y = 2 - x, x < 3$

3. Sketch $y = (x - 2)^2 + 2, x \in [1, \infty)$

4. $y \geq 3x + 2$
   a. Sketch

   b. Is the point $(1, 7)$ in the solution region?

5. $y < 3x + 2$
   a. Sketch

   b. Is the point $(-1, -1)$ in the solution region?

6. Sketch $y > x^2 - 4$

7. Sketch $y \leq 9 - x^2$

8. Solve $2x = 8$

9. Solve $2x < 8$

10. Solve $-2x \geq 8$

11. Solve $-0.25x < 3$

12. Solve $-3x - 9 > x + 4$

13. Solve $-\frac{4}{5} < -\frac{3}{7}a$

14. Solve $\frac{2x}{3} + 1 \geq 2(x - 1)$

15. Solve $-4 < -2x \leq 8$

16. Sketch $y < x^2 - 5x + 6$

17. Solve $x^2 - 5x + 6 \leq 0$

    a. Using set notation: $<$ or $\geq$

    b. Using interval notation: (or [

    c. Using a number line

18. Solve $x^2 - 5x + 6 > 0$

a. Using set notation: $<$ or $\geq$

b. Using interval notation: (or [

c. Using a number line

19. Solve $0 > (x - 2)(x + 4)$

20. $x^2 > 5x - 6$

a. Solve by sketching a single parabola (and factoring)

b. Solve by graphing a parabola and a line

21. Solve $x^2 < 9$

22. Solve $a^2 \geq 4$

23. Solve $(x - 2)^2 < 1$

24. Solve $(x + 1)^2 \geq 25$

25. Solve $(x-3)^2-1 \leq 4$

26. $-\frac{4}{3}(2x-6)^2+3<0$

a. Solve using algebra

b. Verify your answer using Desmos

27. You need to make a garden which has an area less than 18 m².
The length should be 3 m longer than the width.
What are the possible dimensions of the box?