

Name _____ Date _____ Period _____

Transformations of $f(x) = |x|$, Part II - Practice

Algebra II | Unit 2 | Lesson 3 Practice | TEK A2.6.C

Objective: I can find the vertex of $f(x) = a|x - c| + d$, describe all of its transformations, and write a function from a description.

Section 1 — Recall

1. Give the shift and the vertex of $f(x) = |x - 4|$.

Shift: _____ Vertex: _____

2. Give the shift and the vertex of $f(x) = |x + 7|$.

Shift: _____ Vertex: _____

3. Give the shift and the vertex of $f(x) = |x| - 6$.

Shift: _____ Vertex: _____

4. Give the vertex of $f(x) = |x - 2| + 5$.

Vertex: _____

Section 2 — Apply

5. "Compressed by $1/2$, shifted right 3, shifted up 4" - write it as one function, then give its vertex.

$f(x) =$ _____ Vertex: _____

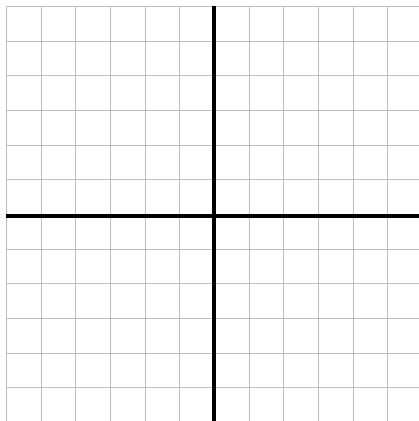
6. Give the vertex of $f(x) = -3|x + 1| - 2$, then describe ALL of its transformations from the parent.

Vertex: _____

Transformations:

7. Graph $f(x) = |x - 2| + 1$. Each square is 1 unit; both axes run -6 to 6.

Vertex to plot first: _____



Section 3 — Challenge

8. — Dunhill Drafting's roofline is modeled by $f(x) = -1.2|x - 3| + 8$. Give the vertex, state whether it is a maximum or a minimum, and say how you know without graphing.

Vertex: _____ Max or min: _____

How you know:

9. A graph has vertex (5, -3), opens upward, and is stretched vertically by 2. Write its equation in vertex form.

$f(x) =$ _____

Section 4 — Explain It

10. In $f(x) = |x - 3| + 4$, the "- 3" shifts the graph RIGHT but the "+ 4" shifts it UP. Explain why one moves opposite its sign and the other moves the same as its sign.
