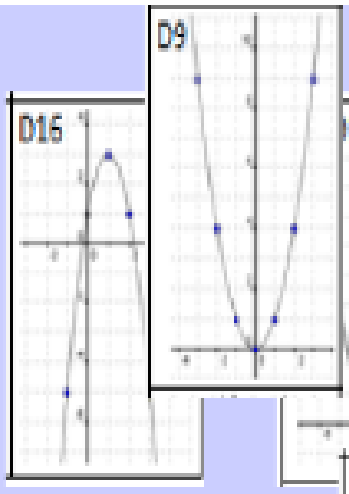
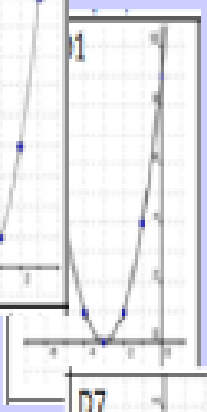
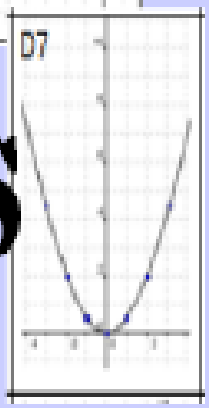
Matching Parabolas to Quadratic Equations



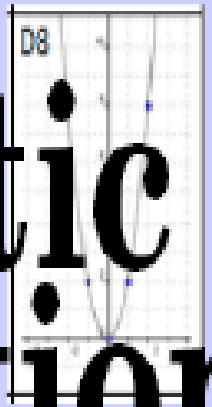




$y = x^2 + 3$

$y = (x+3)^2$

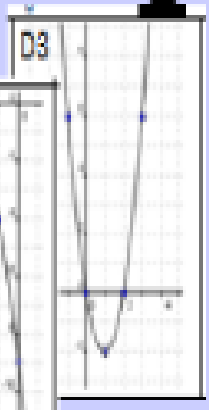
$y = x^2 - 3$

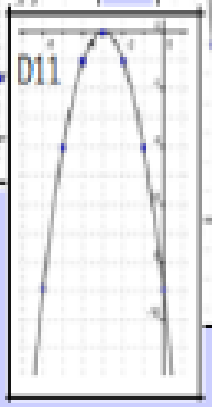


$y = 4(x-1)^2$

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

$y = \frac{1}{2}x^2$





$y = x^2 + 3$

$y = x^2 - 6x + 9$

$y = 2x^2$

Shorter Version

$y = -x^2$

$y = x^2 + 6x + 9$

Sort: Graphing Quadratic Freebie

By Caryn White

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Copy Right Information:

Instructions

You have several options with this sort. Students can graph the equation then look for the matching graph, or they can take a graph find the matching equation. Equations are in both standard and vertex form, allowing you to use the sort more than once. You can also have student match the equations together to work on changing equations from one form to the other. This sort can be used if you have the students graph using transformations or if they find the vertex and 4 more points.

Level 4: Set D

- Includes all types of transformations: translations, reflections and dilations.
- a can equal anything in this set
- This is a combination of the 3 previous sets.

This matching sort is designed to reduce chances of getting it right by guessing. The cards are very similar. For instance, 1 card shifts to the right 3, another to left 3, another up 3, and another down 3. Students must know which direction to shift based on the equation and not because it was the only one that moved 4 units. Also I have switched some values around to make sure student understand where the shift is up or to the right (right 2 up 3 or right 3 up 2). You will have a good idea if students understand the concept after they have completed the matching exercise.

Alternate Ideas and Uses for graphs

- Match equations together (vertex to standard)
- Have student decide from the graphs if the determinate is positive, negative or zero
- Students can identify the x-intercepts in order to find the zeros of the function
- Students can identify the vertex, axis of symmetry, minimum or maximum value
- Students can find domain and range

Printing Instructions and hints

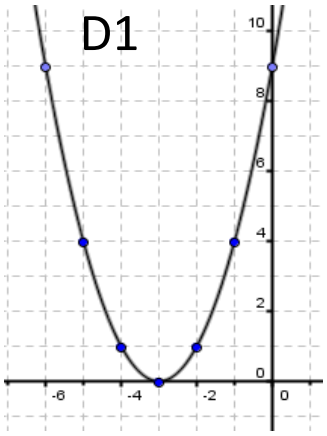
- I print on colored paper then laminate. Once the items are laminated, student can write on them with dry erase markers.
- If you print each set a different color, it is easy to identify where a missing piece belongs.
- On the other hand, if you print each page the same color (all set A one color, set A1 another) then you can distinguish the levels, making it easier to pass out to students.
- To make grading easier, I do not cut out the page of graphs; I have students place the equations over the graphs.
- I print the key on a bright color, this way I can see from across the room if a student is using the key. I sometimes give the key to the first group down and have the walk around and help other students.
- Alternative Use: Have students cut out the equations and glue them to the graphs Then they can keeps them with their notes

Possible Uses in classroom

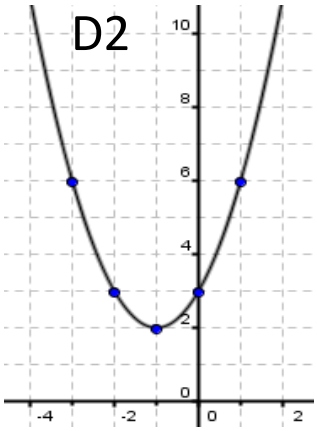
- Review station for test
- Math Station for student that have completed their work
- Mid-Lesson Practice
- End of Lesson Check for understanding
- Alternative to homework

Set D: Graph Quadratic Equations with a = anything

D1



D2



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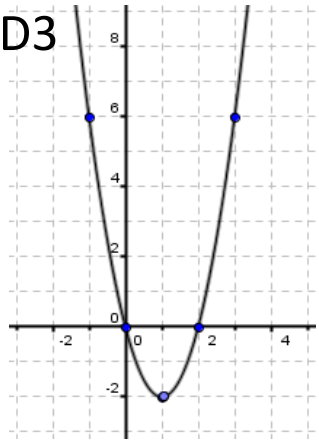

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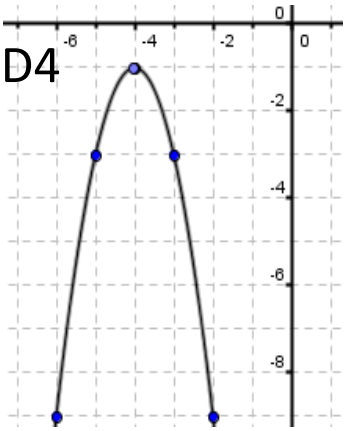

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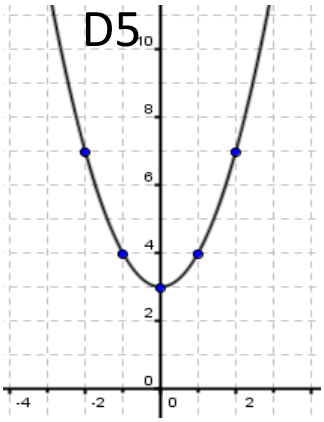

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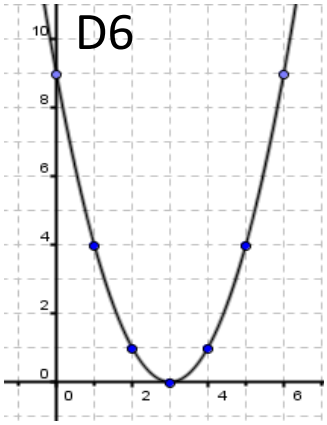

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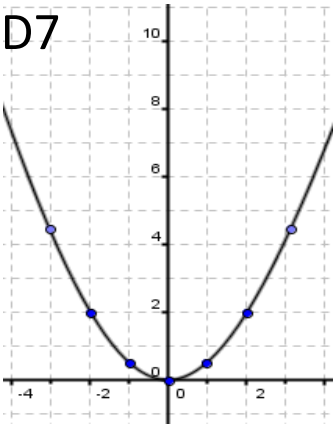

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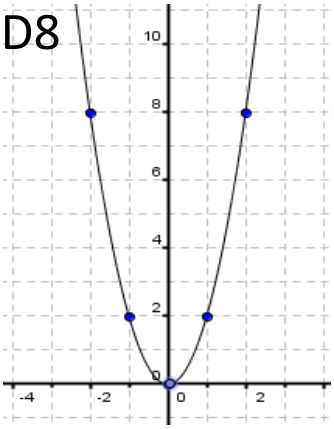

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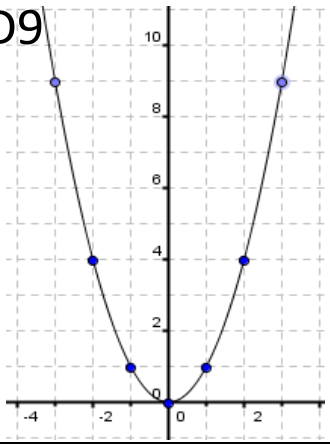

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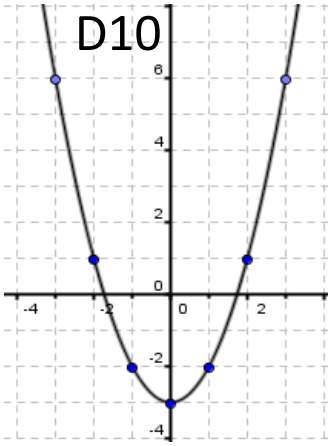

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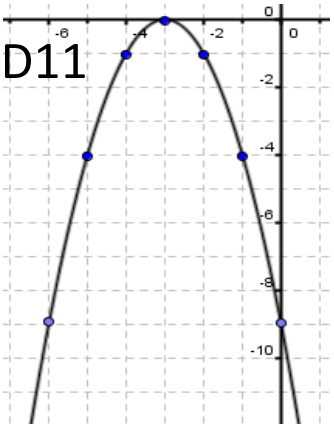

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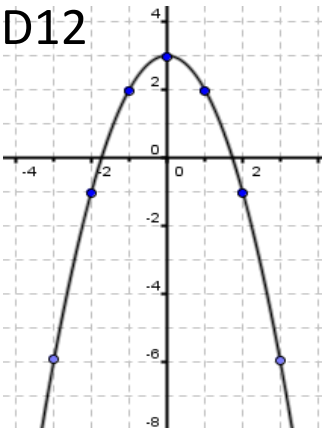

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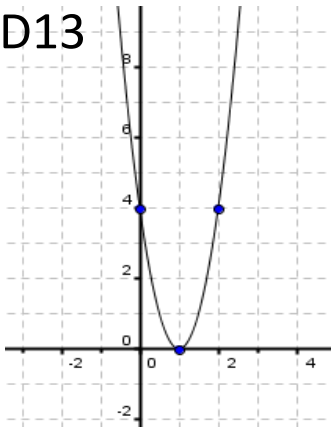

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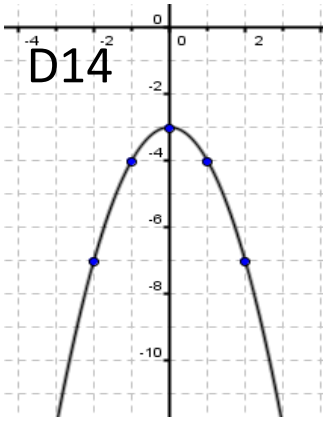

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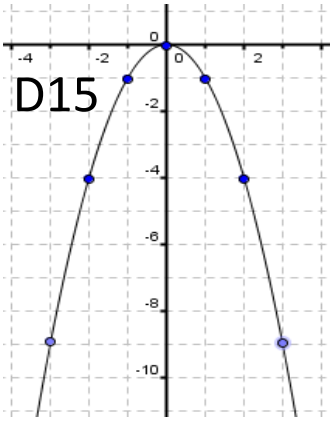

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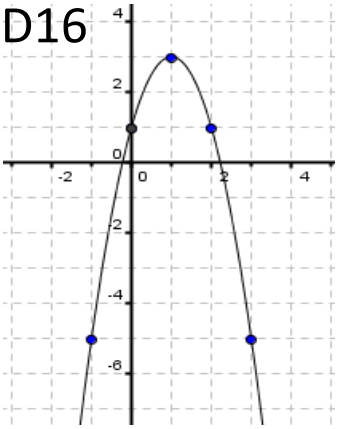


Set D Equations in Vertex Form

$y = (x+3)^2$	$y = (x+1)^2 + 2$	$y = 2(x-1)^2 - 2$	$y = -2(x+4)^2 - 1$
$y = x^2 + 3$	$y = (x-3)^2$	$y = \frac{1}{2} x^2$	$y = 2x^2$
$y = x^2$	$y = x^2 - 3$	$y = -(x+3)^2$	$y = -x^2 + 3$
$y = 4(x-1)^2$	$y = -x^2 - 3$	$y = -x^2$	$y = -2(x-1)^2 + 3$

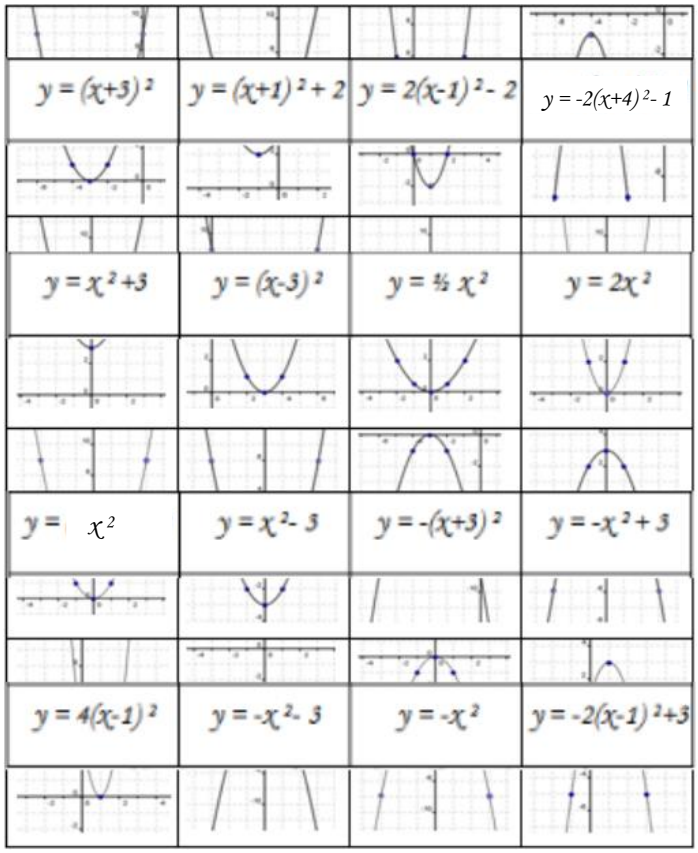
Set D Equations in Standard Form

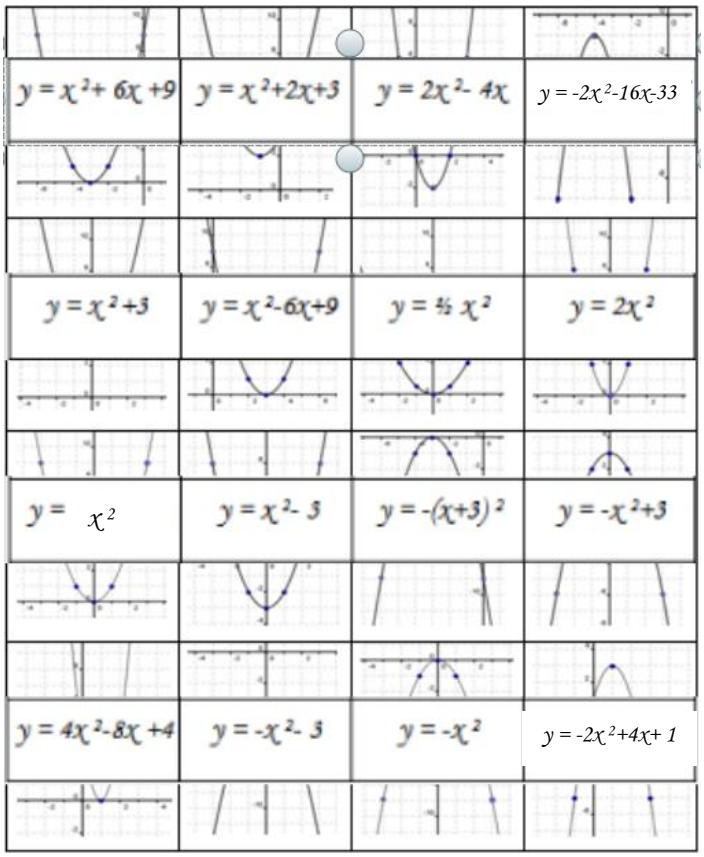
$y = x^2 + 6x + 9$	$y = x^2 + 2x + 3$	$y = 2x^2 - 4x$	$y = -2x^2 - 16x - 33$
$y = x^2 + 3$	$y = x^2 - 6x + 9$	$y = \frac{1}{2} x^2$	$y = 2x^2$
$y = x^2$	$y = x^2 - 3$	$y = -x^2 - 6x - 9$	$y = -x^2 + 3$
$y = 4x^2 - 8x + 4$	$y = -x^2 - 3$	$y = -x^2$	$y = -2x^2 + 4x + 1$

Student Answer Sheets

Name: _____ Set ____	Name: _____ Set ____	Name: _____ Set ____
1. _____	1. _____	1. _____
2. _____	2. _____	2. _____
3. _____	3. _____	3. _____
4. _____	4. _____	4. _____
5. _____	5. _____	5. _____
6. _____	6. _____	6. _____
7. _____	7. _____	7. _____
8. _____	8. _____	8. _____
9. _____	9. _____	9. _____
10. _____	10. _____	10. _____
11. _____	11. _____	11. _____
12. _____	12. _____	12. _____
13. _____	13. _____	13. _____
14. _____	14. _____	14. _____
15. _____	15. _____	15. _____
16. _____	16. _____	16. _____

Set D





Vertex Form	*Standard Form*
1. $y = (x+3)^2$	*1.* $y = x^2 + 6x + 9$
2. $y = (x+1)^2 + 2$	*2.* $y = x^2 + 2x + 3$
3. $y = 2(x-1)^2 - 2$	*3.* $y = 2x^2 - 4x$
4. $y = -2(x+4)^2 - 1$	*4.* $y = -2x^2 - 16x - 33$
5. $y = x^2 + 3$	*5.* $y = x^2 + 3$
6. $y = (x-3)^2$	*6.* $y = x^2 - 6x + 9$
7. $y = \frac{1}{2} x^2$	*7.* $y = \frac{1}{2} x^2$
8. $y = 2x^2$	*8.* $y = 2x^2$
9. $y = x^2$	*9.* $y = x^2$
10. $y = x^2 - 3$	*10.* $y = x^2 - 3$
11. $y = -(x+3)^2$	*11.* $y = -(x+3)^2$
12. $y = -x^2 + 3$	*12.* $y = -x^2 + 3$
13. $y = 4(x-1)^2$	*13.* $y = 4x^2 - 8x + 4$
14. $y = -x^2 - 3$	*14.* $y = -x^2 - 3$
15. $y = -x^2$	*15.* $y = -x^2$
16. $y = -2(x-1)^2 + 3$	*16.* $y = -2x^2 + 4x + 1$

Thanks for downloading my product

If you like this sort, consider purchasing the extended version…

Matching Graphs of Parabola with Quadratic Equations Review Activity

Level 1: Set A

- The graphs and equations are only translations: horizontal, vertical, or both
- For all equations, a=1

Level 2: Set B

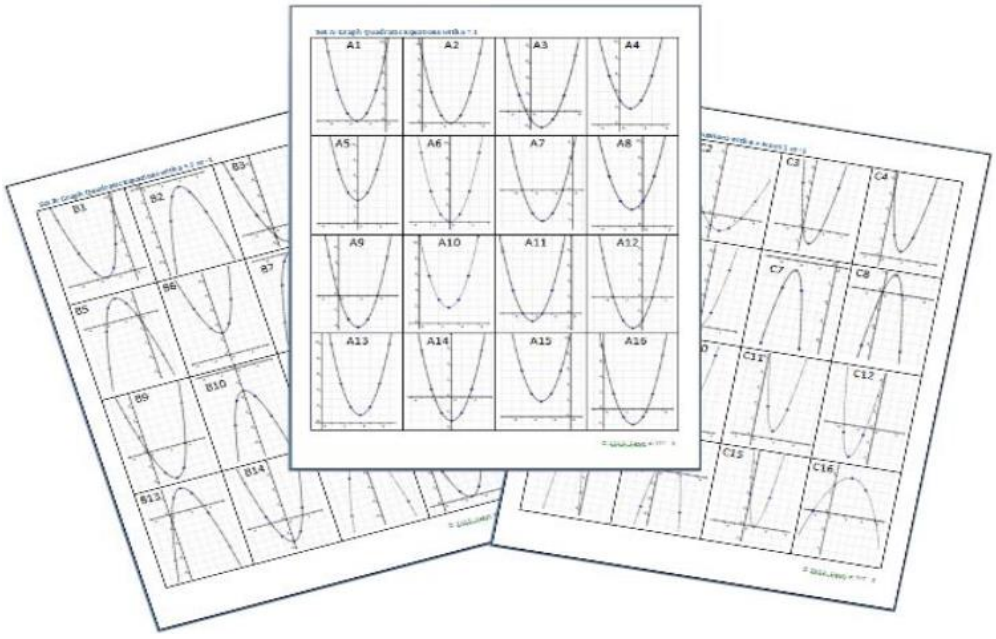
- The graphs and equations show translations and reflections across the x-axis
- For all equations, a = 1 or -1
- Half the graphs from set A are included in set B

Level 3: Set C

- The graphs and equations show translations, reflections across the x-axis and dilations (stretching and shrinking)
- For all equations, a ≠ 1 or -1
- All new graphs

Level 4: Set D

- Includes all types of transformations: translations, reflections and dilations.
- a can equal anything in this set
- This is a combination of the 3 previous sets.



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