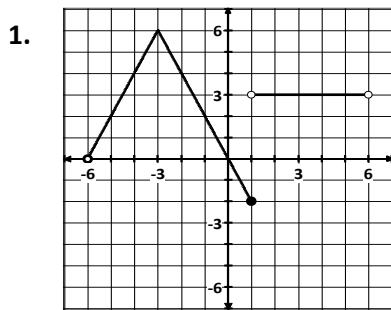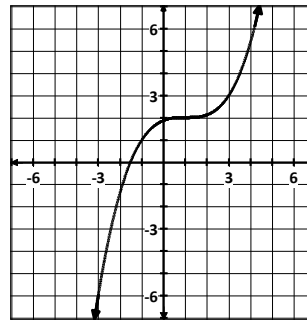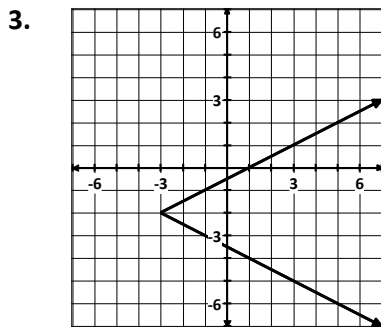| **Target 1**: State the domain and range of any relation or function in set builder and interval notation. |
| --- |

1-6: Determine whether each is the graph of a function then state the domain and range in either notation.
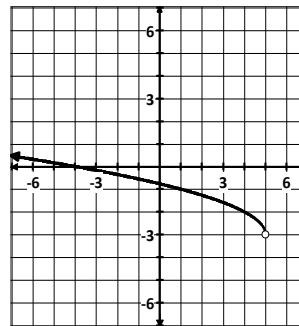
1.

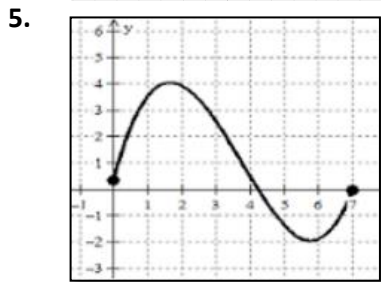
Function? Yes   No

D: _____
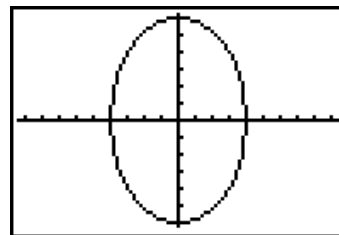
R: _____

2.

Function? Yes   No

D: _____

R: _____

3.

Function? Yes   No

D: _____

R: _____

4.

Function? Yes   No

D: _____

R: _____

5.

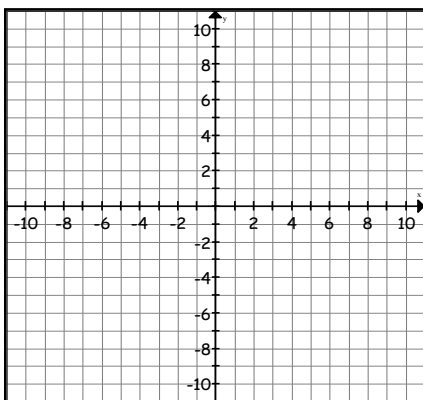Function? Yes   No

D: _____

R: _____

6.

Function? Yes   No

D: _____

R: _____

Target 2: I CAN graph a quadratic function, and state all of its parts (vertex, roots/zeros, intercepts, axis of symmetry, domain and range) in any form (standard, vertex, intercept) with and without a graphing calculator

7-9: Graph each function and fill in the blanks. Express the domain and range using interval notation.

7. $f(x) = -(x + 4)^2 + 9$

vertex: _____   roots: _____   y-intercept: _____

domain: _____   range: _____   axis of symmetry: _____

Does this parabola open **UP**   or   **DOWN** ?   circle one

Circle the equation that does **NOT** have the same **ZEROS** as **f(x)**:
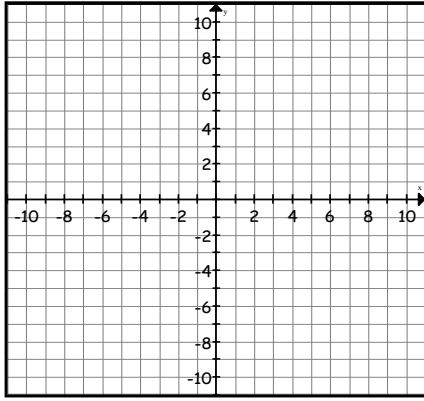
$y = x^2 + 8x + 7$ $y = x^2 + 8x - 7$

$y = -x^2 - 8x - 7$ $y = -2x^2 - 16x - 14$

Which equation is the standard form for **f(x)**? _____
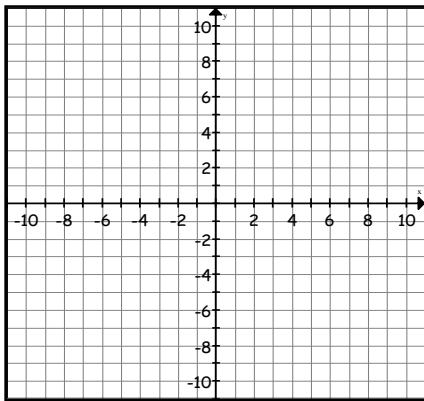
8.　　　$f(x) = 4x^2 + 8x - 5$

vertex: _____　　roots: _____　　y-intercept: _____

domain: _____　　range: _____　　axis of symmetry: _____

What form is **f(x)** in?　**standard**　　**vertex**　　**intercept**　　(circle one)

Write **f(x)** in a different form: _____

Hint: remember that "a" is the same in all three forms

9.　　　$f(x) = -(x - 4)(x + 2)$

vertex: _____　　roots: _____　　y-intercept: _____

domain: _____　　range: _____　　axis of symmetry: _____
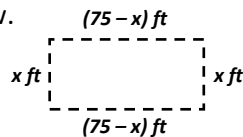
What are the coordinates of the x-intercepts of **f(x)**?

_____　　　_____

Name two symmetrical points on **f(x)** other than the x-intercepts.

_____　　　_____

Target 3: *I CAN apply knowledge of quadratics in real-life contexts (using the graphing calculator and Desmos).*

10-12: *Read each problem clearly and use the calculator or Desmos to find each answer.*
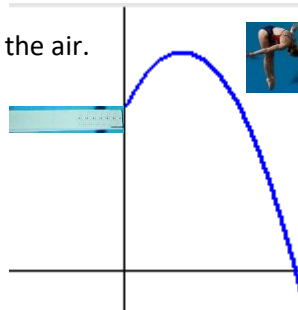
Round all answers to the nearest hundredth.

10.　Bill is using 150 feet of fencing to enclose a rectangular area for his garden. A diagram of the garden is shown below. *(75 – x) ft* *x ft* [dashed rectangle] *x ft* *(75 – x) ft*	The function **f (x) = x(75 – x)** represents the area of the enclosure. What is the maximum area that Bill can enclose with the fencing?
11. Lorryana is a competitive diver. When competing on the 10-meter diving platform, she must jump upward and outward before diving into the pool below. The function **f (x) = -(6x + 5)(x – 2)** represents her height off the ground as compared to her time in the air.	**a.** What is the maximum height that Lorryana reaches? **b.** How many seconds is Lorryana in the air when she reaches her maximum height? **c.** How many seconds after Lorryana leaves the diving board does she enter the water? **d.** When will she be 7 meters in the air?

12. A study compared the speed x (in miles per hour) and the average fuel economy y (in miles per gallon) for cars. The results are shown in the table below:

Speed, x	Fuel Economy, y
15	22.3
20	25.5
25	27.5
30	29.0
35	28.8
40	30.0
45	29.9
50	30.2
55	30.4
60	28.8
65	27.4
70	25.3

a. Find the best fitting quadratic model for the data and write your equation rounded to the nearest hundredth.

b. What speed maximizes the car's fuel economy?

c. Predict what the gas mileage would be if the speed was 63 miles per hour.

Target 4: I CAN factor quadratic expressions.

13-22: Fully factor each expression. Make sure to check for a GCF first.

13. $x^2 + x - 90$

14. $x^2 - 6x + 8$

15. $3x^2 - 21x - 54$

16. $2x^2 - 3x - 5$

17. $9x^2 - 16$

18. $8x^2 - 14x - 15$

19. $2x^2 + 14x - 36$

20. $16x^2 - 100$

21. $x^2 + 12x + 36$

22. $3x^2 - 27x + 60$