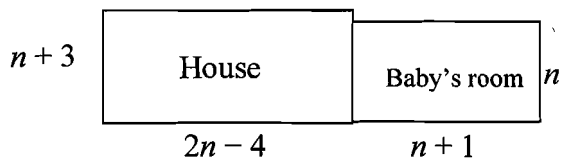


1) The Addams family is having a new addition to their family, but they have no room for a baby, so they are adding onto their home as shown in the diagram below.

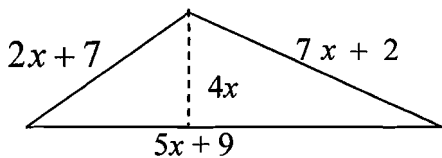


Area of House	Area of Baby's Room
$2n^2 + 2n - 12$	$n^2 + n$

Which expression represents the total area of the house and baby's room?

- (A) $3n^2 + 3n - 12$ [B] $2n^2 + n - 12$ [C] $6n - 12$ [D] $3n^2 - 12$

2) Given this figure below, determine the perimeter and area. WRITE OUT ALL EQUATIONS.



Perimeter: $P = s + s + s$ $A = 14x + 8$	Area: $A = \frac{bh}{2}$ $A = 10x^2 + 18x$
--	--

3) For both equations $y = x^2$ and $y = x^2 + 7$, we call the $y = x^2$ as the Parent Function (look at your notes)

Use the graphing calculator and plug in both $y_1 = x^2$ and $y_2 = x^2 - 4$ and answer the following questions.

4) Complete the table for y_2 .

5) The vertex of y_2 is located at (0, -4)

6) Is it a minimum or maximum (circle one)? At point -4

7) What is the line of symmetry of y_2 ? x = 0

8) What are the roots on y_2 ? (±2, 0)

9) What point is symmetric to (-3, 5) in y_2 ? (3, 5)

10) Compare the points of y_1 to the points in y_2 . What is the shift? Down 4

11) What is the range of y_2 ? $y \geq -4$

x	y_1	y_2
-3	9	5
-2	4	0
-1	1	-3
0	0	-4
1	1	-3
2	4	0
3	9	5

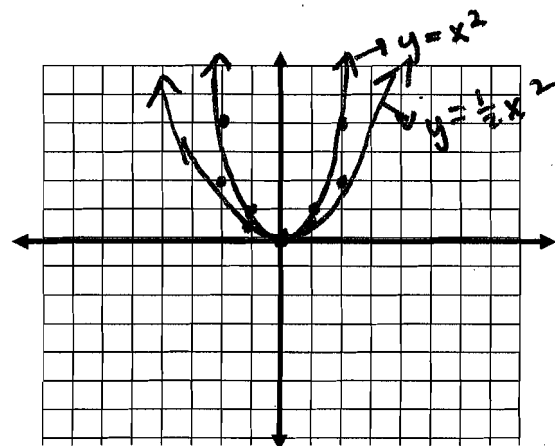
Use the following functions, $y_1 = x^2$ and $y_2 = \frac{1}{2}x^2$ to answer the following questions below. Graph y_1 and y_2 .

12) What do you notice about these graphs? (bigger, smaller, etc...)

Bigger

13) Describe the location of the vertex of y_2 compared to the vertex of y_1 . Be specific.

Stays the Same



14) Write an equation that is shifted 5 units above the function $y = x^2 + 2$? $y = x^2 + 7$

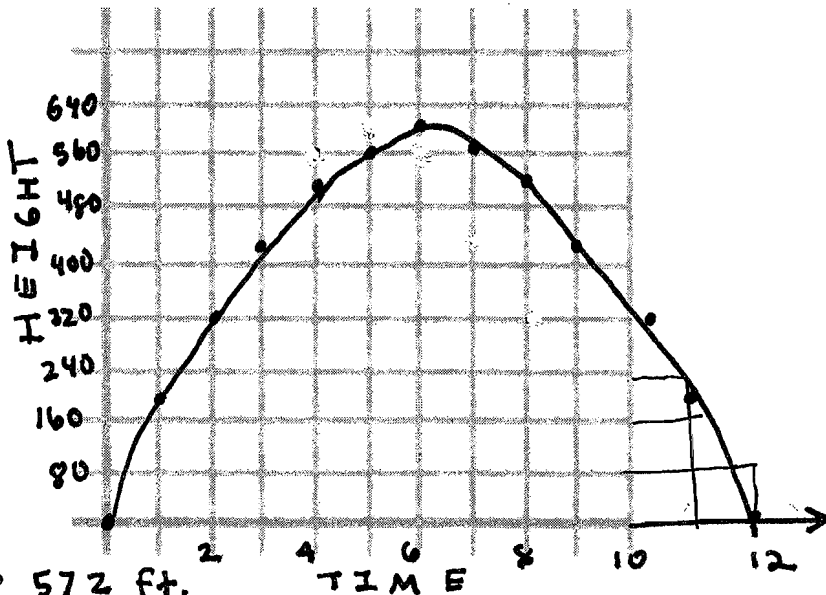
15) Write an equation that is shifted 5 units below the function $y = x^2 + 2$? $y = x^2 - 3$

Quadratics in Real Life Use the following information to answer the questions that follow:

16) Martin shot his algebra book using a giant slingshot. The path of the book can be modeled by the function, $y = -16x^2 + 192x$.

a) Complete the table, plot, and graph.

Time	Height
0	0
1	176
2	320
3	432
4	512
5	560
6	572
7	560
8	512
9	432
10	320
11	176
12	0



b) What was the maximum height of the book? 572 ft.

c) How long did it take for the book to hit the ground? 12 seconds

d) At what times was the book at 512 feet? 4secs, 8secs

17) If the equation was $y = -16x^2 + 208x$, what is the vertex? (6.5 sec, 676 feet)

Find the domain and/or range of the following functions given the domain. Substitute and show all steps.

18) $y = \frac{1}{2}x + 4$ Domain: $\{-8, -4, 2, 3\}$

$$y = \frac{1}{2}(-8) + 4$$

$$y = -4 + 4$$

$$y = 0$$

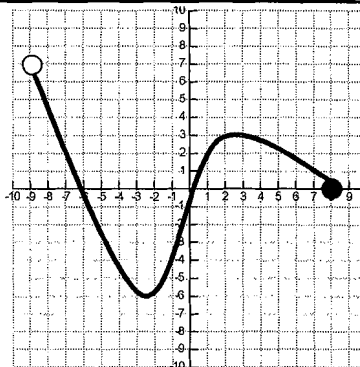
$$y = \frac{1}{2}(-4) + 4$$

$$y = -2 + 4$$

$$y = 2$$

Range: $\{0, 2, 5, 5.5\}$

19)



Domain: $-9 < x \leq 8$

Range: $-6 \leq y \leq 7$

20) Circle the equation(s) that have a graph that is **opens downwards** and is **wider** than $y = x^2$

$y = x^2 + 3$

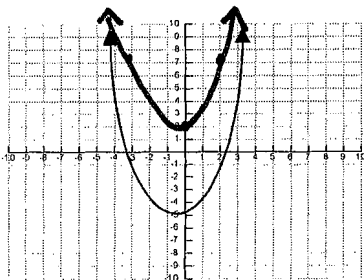
$y = -x^2$

$y = 2x^2$

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

$y = -3x^2$

$y = -\frac{1}{5}x^2$



21) What is its parent function? $y = x^2$

22) What is the domain? All Real Numbers

23) What is the range? $y \geq -5$

24) Sketch the graph if the scale was shifted up by 7 units up.