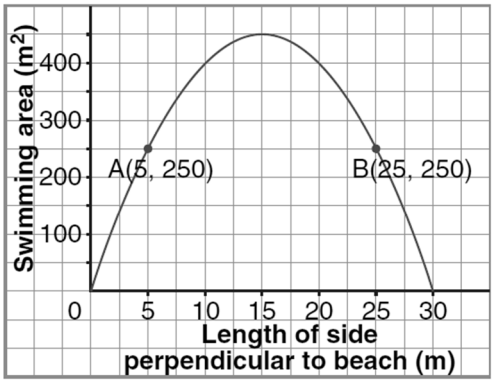
REVIEW

1. A rectangular swimming area is to be enclosed by 60 m of rope. One side of the swimming area is along the shore so the rope will only be used on three sides. The graph shows how the swimming area is related to the length of the side perpendicular to the beach.



a. Interpret what the vertex represents. Draw a sketch this swimming area and label it.

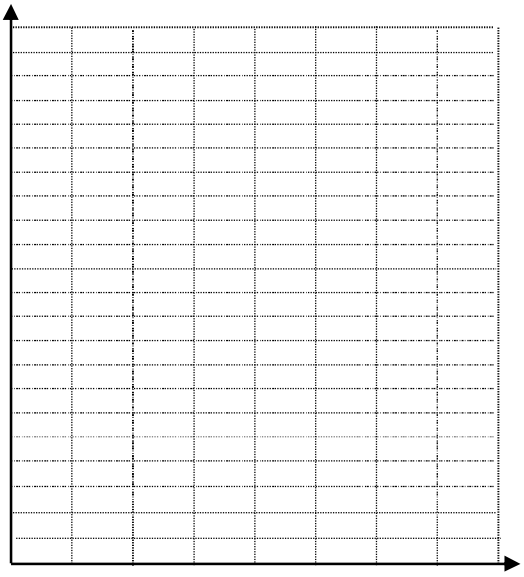
b. What are the dimensions of the largest swimming area?

c. Draw the swimming areas that correspond to points A and B, and label their dimensions. What is the same about these swimming areas? Which would you prefer, and why?

2. The stopper in a bathtub is released and the water begins to drain. The volume of water, *V* litres, in the tub *t* minutes after the stopper is pulled is given by the equation $V = -5t^2 - 8t + 120$.

   a. Complete the table to graph the relation. Label axes and give graph a title.

t	$-5t^2 - 8t + 120$	*V*
0		
1		
2		
3		
4		
5		



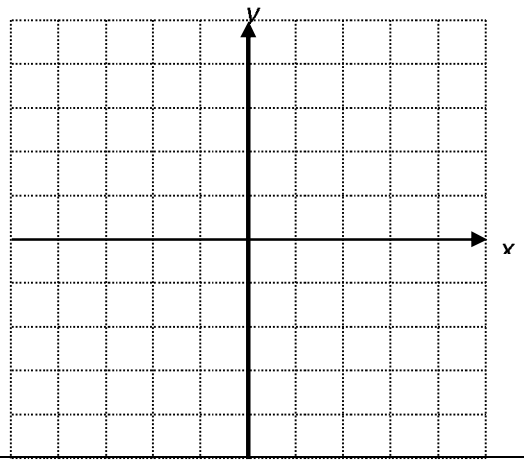
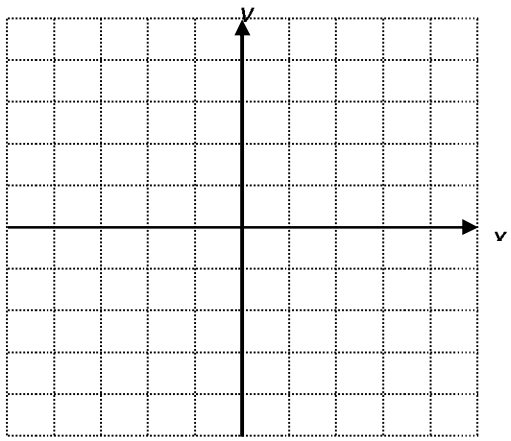
Why do we only need to use the first quadrant?

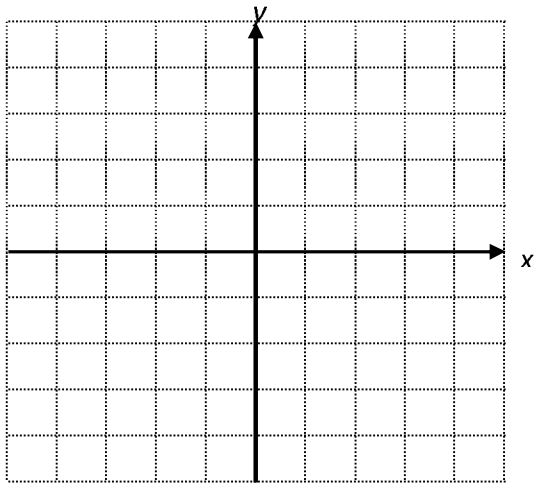
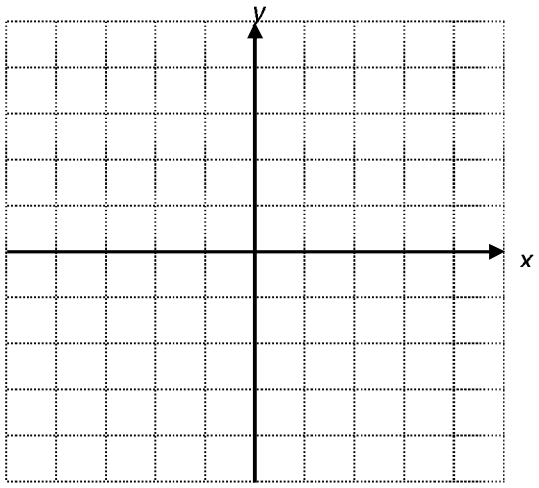
_____

   b. How many litres of water are in the tub when it begins to drain? _____

   c. How much time does it take for all the water to drain? _____

3. (i) State the transformations to $y = x^2$ for each of the following and (ii) sketch each graph.

	a. $y = (x-2)^2$	b. $y = x^2 - 2$
(I) TRANSFORMATIONS		
(II) GRAPH		

	a. $y = -2x^2$	b. $y = -x^2 + 2$
(I) TRANSFORMATIONS		
(II) GRAPH		

a. How are the graphs the same?

_____

_____

_____

b. How are they different?

_____

_____

_____

4. In each case, the parabola $y = x^2$ is transformed as described. Write the equation of the new parabola in the form $y = a(x-h)^2 + k$.

a. The parabola is translated 2 units up and 5 units right. _____

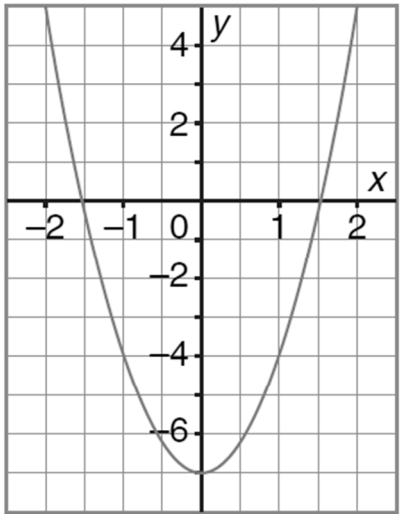
b. The parabola is stretched vertically by a factor of 4. _____

c. The parabola is translated 2 units right, then reflected in the *x*-axis. _____

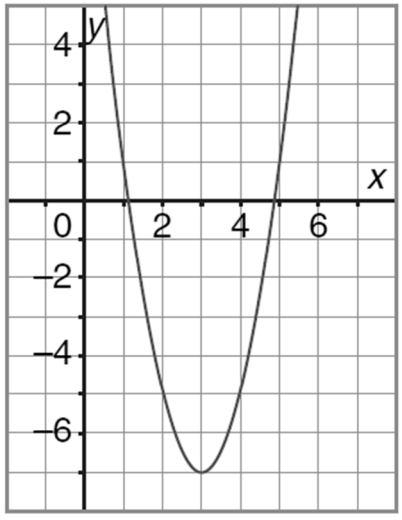
d. The parabola is compressed vertically by a factor of 0.5. _____

5. Match each parabola with its equation. Explain your answers.

①



②



Equation	Matches Graph Number	Because . . .
$y = 2(x-3)^2 - 7$		
$y = 2x^2 - 7$		

6. Use the graph of a quadratic relation below to determine it`s equation.