

## VERTICAL STRETCH AND COMBINED TRANSFORMATIONS OF A QUADRATIC FUNCTION

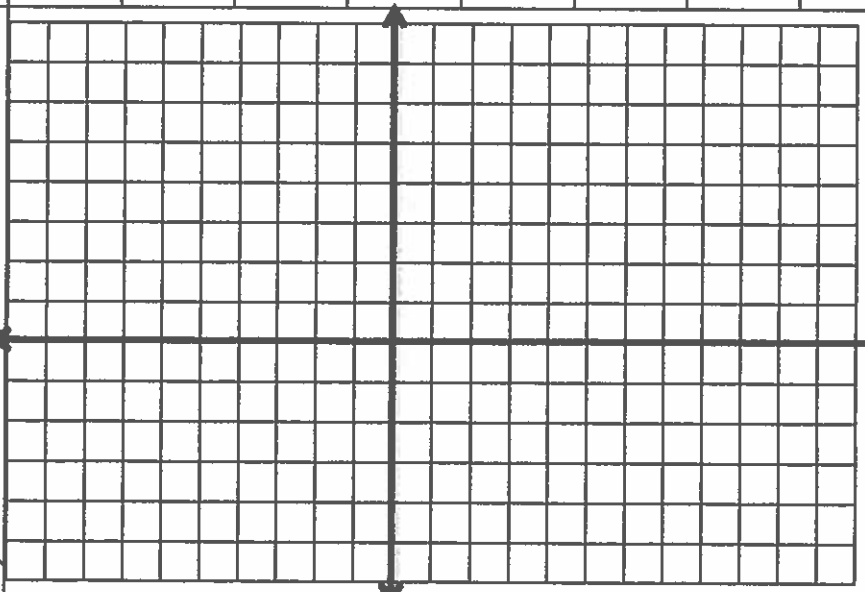
- [5] 1. Given an equation, describe all transformations of the original graph  $f(x) = x^2$ . Read the transformations left-to-right and list them in order.

Equation	Transformations
$f(x) = 7(x - 10)^2$	
$f(x) = -5(x - 1)^2 + 4$	
$y = 0.5x^2 + 4$	
$f(x) = -3x^2$	
$y - 1 = (x + 2)^2$	

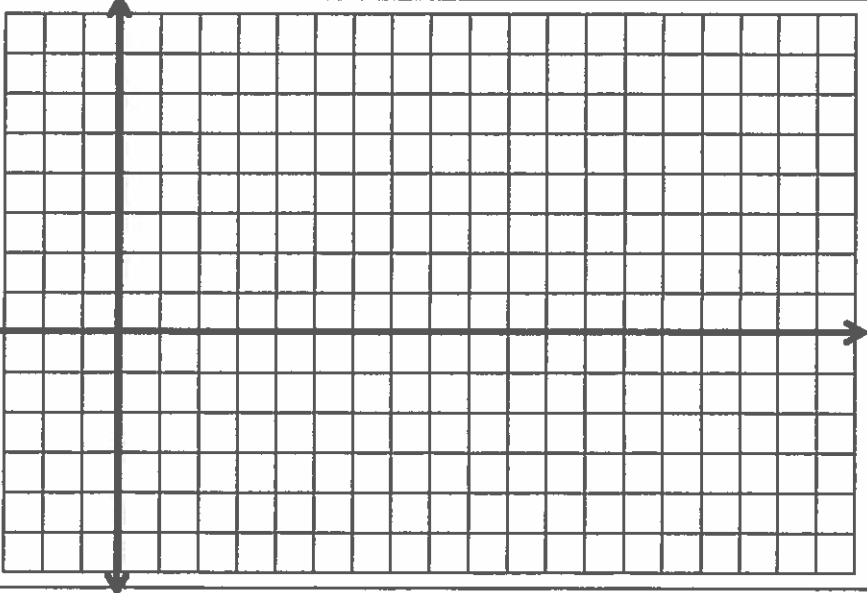
[50]

2. Graph the given function and describe its properties. (10 marks each)

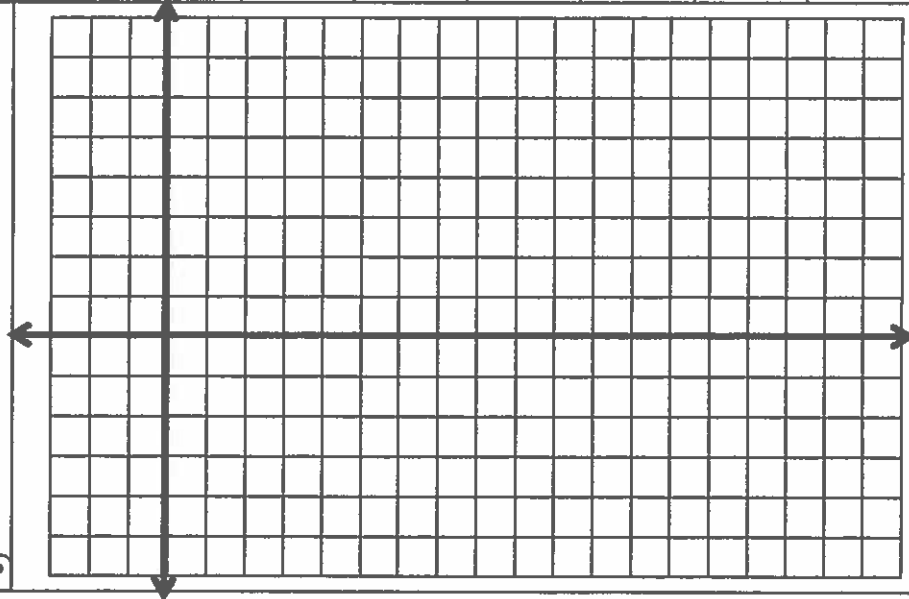
a)



$f(x) = 0.5x^2$	
Coordinates of the vertex	
Opening	
Exact x-intercepts	
Exact y-intercept	
Domain	
Range	
Transformations	
Value of the maximum or minimum	

b)	$f(x) = -3x^2$	
		Coordinates of the vertex
		Exact x-intercepts
		Opening
		Exact y-intercept
		Domain
		Range
		Transformations
		Value of the maximum or minimum

c)



$$f(x) = -2x^2 + 1$$

Coordinates of the vertex

Exact x-intercepts

Opening

Exact y-intercept

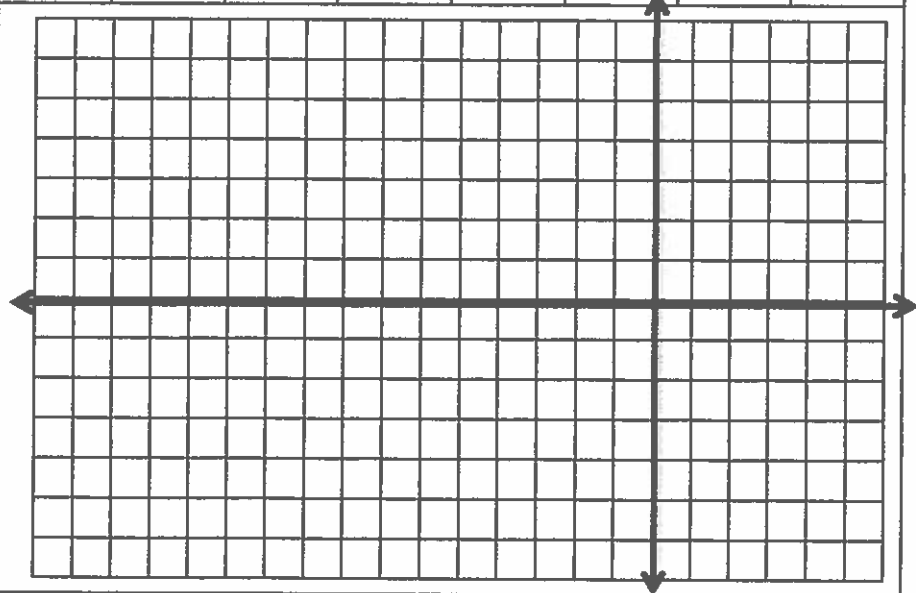
Domain

Range

Transformations

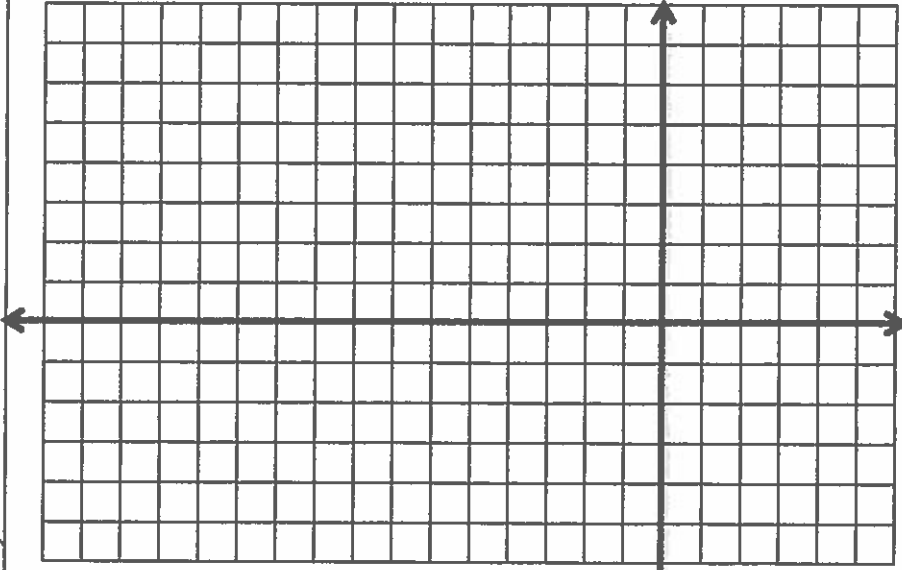
Value of the maximum or minimum

d)



$f(x) = \frac{1}{3}x^2 - 2$	
Coordinates of the vertex	
Exact x-intercepts	
Opening	
Exact y-intercept	
Domain	
Range	
Transformations	
Value of the maximum or minimum	

e)



$$y = 0.25(x - 2)^2 - 4$$

Coordinates of the vertex

Exact x-intercepts

Opening

Exact y-intercept

Domain

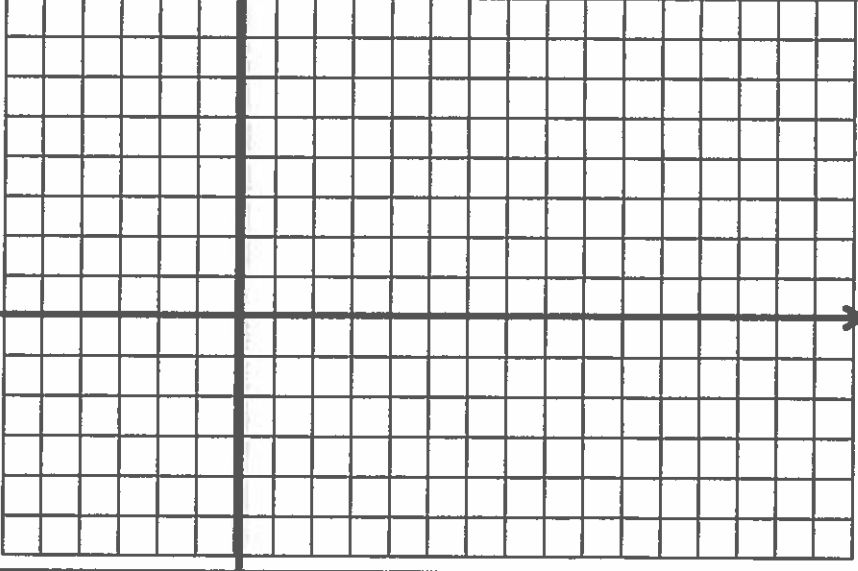
Range

Transformations

Value of the maximum or minimum

**Accept the challenge:**

Without using technology and showing all your work, graph and answer the following:

e) 	$y = (x + 1)(x - 6)$
	Coordinates of the vertex
	Exact x-intercepts
	Opening
	Exact y-intercept
	Domain
	Range
	Transformations
	Value of the maximum or minimum