

Name: \_\_\_\_\_

Date: \_\_\_\_\_

**Instructions:** Please complete the following problems. Each answer (for problems 1-7) is associated with a letter that creates a secret word. You can find the key on the last page.

**Problem 1.** True or False: If  $a < 0$ , then  $f(x) = ax^2 + bx + c$  has a maximum.

**Problem 2.** Find the quadratic function with vertex  $(-2, 3)$  and passes through the point  $(1, 4)$ .

**Problem 3.** Write in general form:  $f(x) = 2(x - 3)^2 - 19$

**Problem 4.** What is the vertex of  $f(x) = x^2 - 10x + 1$

**Problem 5.** Write in standard form:  $f(x) = -3x^2 - 6x + 4$

**Problem 6.** What is the range of  $f(x) = -3(x + 1)^2 + 2$

**Problem 7.** Describe the transformations on  $g(x) = -(x - 2)^2 + 4$  from the parent function  $f(x) = x^2$

**Graphs:** Please complete the following problems to practice your graphing skills.

**Problem 8.** Graph:  $f(x) = -4 + (x - 3)^2$

**Problem 9.** Graph:  $f(x) = -x^2 + 6x - 8$

**Problem 10.** Graph:  $f(x) = x^2 - 2x + 2$

A	False
B	$f(x) = -x^2 - x + 1$
C	Neither
D	7
E	Right 2, reflection over the x-axis, and up 4
F	$(-5, -24)$
G	Reflect over y-axis, right 2, up 4
H	$f(x) = \frac{1}{9}(x + 2)^2 + 3$
I	$f(x) = 2x^2 - 12x - 1$
J	$\frac{1}{28}$
K	$f(x) = 2x^2 + 12x + 1$
L	$(-\infty, 2]$
M	Right 2, up 4
N	No
O	42
P	$3x^3 + 12x^2 + x + 9$
Q	$f(x) = -(x + 2)^2$
R	$y - y_1 = m(x - x_1)$
S	$(5, -24)$
T	$f(x) = -3(x + 1)^2 + 7$
U	Yes
V	$(-\infty, 2)$
W	True
X	-90
Y	$f(x) = x^2$
Z	$y = mx + b$

What was the secret word you found?

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