NO calculator is allowed on these three questions.

1. For the quadratic function f, the table below gives some values of x and their corresponding values of $f(x)$. Which of the following equations could define f?

x	$f(x)$
2	7
3	5
4	7

A) $f(x) = (x-3)^2 + 5$ B) $f(x) = (x-3)^2 + 9$ C) $f(x) = 2(x-2)^2 + 7$ D) $f(x) = 2(x-3)^2 + 5$

2. Given: $3(x-5)^2 + 11 = 59$ What is the smallest value of x that satisfies this equation?
A) 9   B) 7   C) 5   D) 1

3. If one solution to the system of equations below is (x, y), what is one possible value of x?
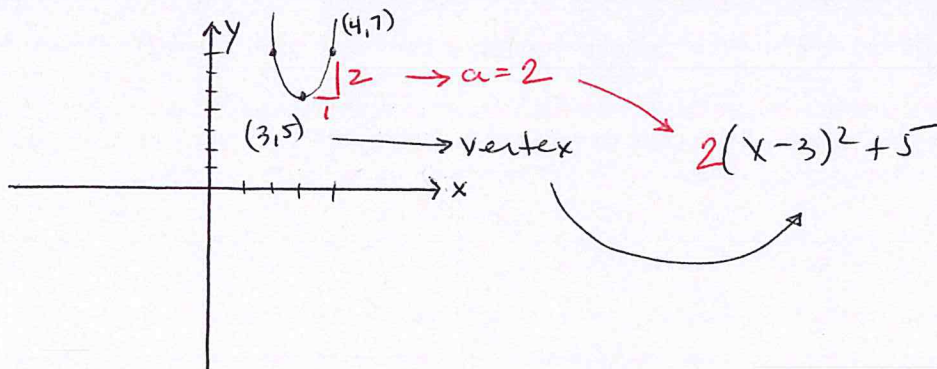$x + y = 17$
$xy = 72$

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$(4,7)$

$|2 \rightarrow a = 2$

$(3,5) \longrightarrow$ vertex

$2(x-3)^2 + 5$

2. Given: $3(x-5)^2 + 11 = 59$ What is the smallest value of x that satisfies this equation?

A) 9   B) 7   C) 5   **D) 1**

$$3(x-5)^2 + 11 = 59$$
$$ -11 \quad -11$$

$$\frac{3(x-5)^2}{3} = \frac{48}{3}$$

$$\sqrt{(x-5)^2} = \sqrt{16}$$

$$x - 5 = \pm 4$$
$$+5 \qquad +5$$

$$x = \begin{array}{l} +4 +5 = 9 \\ -4 +5 = 1 \end{array}$$

3. If one solution to the system of equations below is (x,y), what is one possible value of x?

$x + y = 17$
$xy = 72$ $\longrightarrow$ $y = 17 - x$ solve 1st equation for y

$x(17 - x) = 72$
use substitution to solve the system

$17x - x^2 = 72$

$0 = x^2 - 17x + 72$

-9×-8
-17

$(x-9)(x-8) = 0$

$\boxed{x = 8, 9}$

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