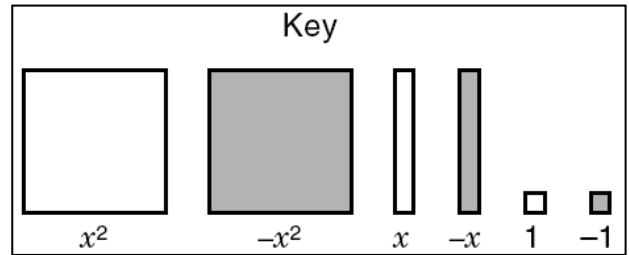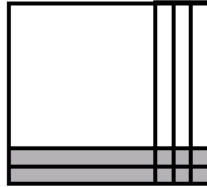Name _____   Date _____

Reporting Category 5 (A.10.A.)

1. The polynomial $x^2 + x - 6$ is modeled below using algebraic tiles.
What are the solutions to the equation $x^2 + x = 6$?

A $x = -3$ and $x = -2$
B $x = -3$ and $x = 2$
C $x = 3$ and $x = -2$
D $x = 3$ and $x = 2$

Key

| x^2 | $-x^2$ | x | $-x$ | 1 | -1 |

2. What are the solutions to the quadratic equation $2n^2 = 5n + 7$?

A $n = -3.5$ and $n = -1$
B $n = -1$ and $n = 3.5$
C $n = 3.5$ and $n = 1$
D $n = 1$ and $n = -3.5$

3. What is the solution set for the equation $4(3x - 2)^2 = 36$?

A $\{-\dfrac{11}{6}, \dfrac{11}{6}\}$ **C** $\{-\dfrac{1}{3}, \dfrac{5}{3}\}$

B $\{-\dfrac{11}{3}, \dfrac{11}{3}\}$ **D** $\{-\dfrac{2}{3}, \dfrac{4}{3}\}$

4. The completion of a certain chemical reaction is expressed by the equation $y = 250 - 5x - x^2$, where y is the number of seconds needed to complete the reaction and x is the temperature in degrees Celsius at which the reaction occurs. If the reaction is complete in 200 seconds, what is the temperature at which the reaction occurs?

A 5°C
B 7°C
C 10°C
D 12°C

Reporting Category 5 (A.10.A.)

5. Nancy threw a ball upward from the roof of a 50-foot-high building at an initial velocity of 40 feet per second. The table shows the relationship between the time elapsed and the ball's height above the ground.

If the height of the ball is a quadratic function of time, between what times did the ball reach a height of 70 feet?

Time After Nancy Threw the Ball (seconds)	Height of the Ball Above the Ground (feet)
0	50
0.5	66
1.0	74
1.5	74
2.0	66
2.5	50

F Between 0 seconds and 0.5 second

G Between 1 second and 1.5 seconds

H Between 0.5 second and 1 second and between 1.5 seconds and 2 seconds

J Between 1 second and 1.5 seconds and between 1.5 seconds and 2 seconds

6. What are the zeros of the function $y = \dfrac{1}{2}(x + 4)(x - 6)$?

A −4 and 6

B −3 and 2

C 4 and −6

D −2 and 3

7. The graph of the function $y = x^2 + 2x - 3$ is shown below.

What are the y-intercept and x-intercepts of the function?

F (0, −3), (0, 1), (−3, 0)

G (0, −3), (1, 0), (−3, 0)

H (−3, 0), (1, 0), (−3, 1)

J (1, −3), (0, 1), (0, −3)