1.15.16 **Complete the following SAT problems without a calculator.**

1. What are the solutions to $3x^2 + 12x + 6 = 0$?

- A) $x = -2 \pm \sqrt{2}$
- B) $x = -2 \pm \frac{\sqrt{30}}{3}$
- C) $x = -6 \pm \sqrt{2}$
- D) $x = -6 \pm 6\sqrt{2}$

$a=3 \quad b=12 \quad c=6$

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

$$x = \frac{-12 \pm \sqrt{12^2 - 4(3)(6)}}{2(3)}$$

$$x = \frac{-12 \pm \sqrt{144 - 72}}{6}$$

$\sqrt{36} \cdot \sqrt{2}$

$$x = \frac{-12 \pm \sqrt{72}}{6} \quad \sqrt{72} = 6\sqrt{2}$$

$$x = \frac{-12 \pm 6\sqrt{2}}{6}$$

$$x = -2 \pm \sqrt{2}$$

2. $2x(3x + 5) + 3(3x + 5) = ax^2 + bx + c$

In the equation above, a, b, and c are constants. If the equation is true for all values of x, what is the value of b ?

$6x^2 + 10x + 9x + 15$

$6x^2 + 19x + 15$

$b = 19$