

Algebra 2

Name \_\_\_\_\_

10.3E Solve by Taking Square Roots (paper only)

Solve each equation by taking square roots. Simplify radicals completely.

1)  $x^2 + 9 = -7$

$$\sqrt{x^2} = \sqrt{-16}$$

$$x = \boxed{\pm 4i}$$

2)  $9p^2 + 3 = -60$

$$\frac{9p^2}{9} = \frac{-63}{9}$$

$$\sqrt{p^2} = \sqrt{-7} \quad p = \boxed{\pm i\sqrt{7}}$$

3)  $6n^2 = -108$

$$\sqrt{n^2} = \sqrt{-18}$$

$$n = \boxed{\pm 3i\sqrt{2}}$$

$$\begin{array}{r} \text{in} \\ 2 \overline{)18} \\ \underline{3 \ 9} \\ 3 \end{array}$$

3 out

4)  $-6m^2 = 426$

5)  $a^2 - 8 = -17$

6)  $2x^2 + 5 = 18$

$$\frac{2x^2}{2} = \frac{13}{2}$$

$$\sqrt{x^2} = \frac{\sqrt{13} \cdot \sqrt{2}}{\sqrt{2} \cdot \sqrt{2}}$$

$$x = \boxed{\pm \frac{\sqrt{26}}{2}}$$

$$\begin{array}{r} 2 \overline{)26} \\ \underline{13} \end{array}$$

7)  $25a^2 + 3 = -46$

8)  $36v^2 + 10 = 14$

$$\frac{36v^2}{36} = \frac{4}{36}$$

$$\sqrt{v^2} = \frac{\sqrt{4}}{\sqrt{36}}$$

$$v = \pm \frac{2}{6} = \boxed{\pm \frac{1}{3}}$$

9)  $2x^2 - 9 = 34$

10)  $6v^2 - 5 = 44$

$+5 +5$

$$\frac{6v^2}{6} = \frac{49}{6}$$

$$\sqrt{v^2} = \frac{\sqrt{49}}{\sqrt{6}}$$

$$v = \pm \frac{7 \cdot \sqrt{6}}{\sqrt{6} \cdot \sqrt{6}}$$

$$v = \boxed{\pm \frac{7\sqrt{6}}{6}}$$

11)  $4x^2 + 9 = 71$

12)  $5n^2 - 4 = -14$

13)  $7v^2 - 2 = -11$

14)  $4x^2 - 5 = -48$

15)  $9b^2 - 4 = -61$

16)  $4n^2 + 7 = -18$

17)  $2b^2 - 8 = -29$

18)  $4b^2 + 5 = -16$