

# CAL2 Notes

## Solving Equations Part 1

Solve.

1.  $6 - 6(3p + 2) = 6p + 18$

$$6 - 18p - 12 = 6p + 18$$

$$-18p - 6 = 6p + 18$$

$$-24p = 24$$

$$p = -1$$

2.  $-5(n - 7) + 7 = 7(7n + 6) - 5n$

$$-5n + 35 + 7 = 49n + 42 - 5n$$

$$-5n + 42 = 44n + 42$$

$$-49n = 0$$

$$n = 0$$

3.  $2 - 9|-3y - 5| = -16$

$$-9|-3y - 5| = -18$$

$$|-3y - 5| = 2$$

ALWAYS ISOLATE THE ABSOLUTE VALUE TERM FIRST

SPLIT THE ABSOLUTE VALUE EQUATION INTO TWO BRANCHES →

$$-3y - 5 = 2 \text{ or } -3y - 5 = -2$$

$$-3y = 7$$

$$-3y = 3$$

$$y = \frac{7}{3}, 1$$

4.  $3|3 + 4n| + 4 = 49$

$$3|3 + 4n| = 45$$

$$|3 + 4n| = 15$$

$$3 + 4n = 15 \text{ or } 3 + 4n = -15$$

$$4n = 12$$

$$4n = -18$$

$$n = 3, -\frac{9}{2}$$

Solve by factoring. MOVE ALL TERMS TO ONE SIDE FIRST.

5.  $p^2 = -7p - 10$

$$p^2 + 7p + 10 = 0$$

$$(p + 2)(p + 5) = 0$$

$$p + 2 = 0 \quad p + 5 = 0$$

$$p = -2, -5$$

6.  $x^2 = 5x$

$$x^2 - 5x = 0$$

$$x(x - 5) = 0$$

$$x = 0 \quad x - 5 = 0$$

$$x = 0, 5$$

Solve. Check for extraneous solutions.

$$7. \sqrt{2n-3} = \sqrt{\frac{n}{2}} \quad \leftarrow \begin{array}{l} \text{SQUARE} \\ \text{BOTH} \\ \text{SIDES} \end{array}$$

$$2n-3 = \frac{n}{2}$$

$$2(2n-3) = \left(\frac{n}{2}\right)^2 \quad \begin{array}{l} \text{MULTIPLY} \\ \text{BOTH SIDES} \\ \text{BY 2} \end{array}$$

$$4n-6 = n$$

$$-6 = -3n$$

$$n = 2$$

GET THE RADICAL TERM BY ITSELF  
BEFORE YOU SQUARE BOTH SIDES.

$$8. 5 = -5 + \sqrt{1-33k}$$

$$10 = \sqrt{1-33k}$$

$$100 = 1-33k$$

$$99 = -33k$$

$$k = -3$$

$$9. -5 = -8 + \sqrt{\frac{n}{4}}$$

$$3 = \sqrt{\frac{n}{4}}$$

$$9 = \frac{n}{4}$$

$$n = 36$$

$$10. -12 = -3\sqrt{2n}$$

$$4 = \sqrt{2n}$$

$$16 = 2n$$

$$n = 8$$