

NOTES: Solving Multi-Step Equations

*Are there any grouping symbols?

*Combine like terms on the left side of the equation

*Combine like terms on the right side of the equation?

*Isolate the variable.

$$7x + 3 - 9x - 12 = -3$$

$$\begin{array}{r} -2x - 9 = -3 \\ +9 \quad +9 \end{array}$$

$$\begin{array}{r} -2x = 6 \\ -2 \quad -2 \end{array}$$

$$\boxed{x = -3}$$

check:

$$7(-3) + 3 - 9(-3) - 12 = -3 \checkmark$$

$$-8(6 + 5n) - 3n = -5$$

$$-48 - 40n - 3n = -5$$

$$-48 - 43n = -5$$

$$+48 \quad +48$$

$$\begin{array}{r} -43n = 43 \\ -43 \quad -43 \end{array}$$

$$\boxed{n = -1}$$

$$-8(6 + 5(-1)) - 3(-1) = -5 \checkmark$$

1) $4x - 6x = -20$

Check:

2) $-1 = 5p + 3p - 8 - p$

Check:

3) $-3 \cdot \frac{d-2}{-3} = 10 - 3$

$$\frac{-3(d-2)}{-3} = -30$$

$$\begin{array}{r} d - 2 = -30 \\ +2 \quad +2 \end{array}$$

$$\boxed{d = -28}$$

Check: $\frac{-28 - 2}{-3} = \frac{-30}{-3} = 10 \checkmark$

4) $\frac{1}{3}x + 2x = \frac{7}{2}$ L.C.M: 6

$$\frac{6}{3}x + 12x = \frac{42}{2}$$

$$\downarrow$$

$$2x + 12x = 21$$

$$\begin{array}{r} 14x = 21 \\ 14 \quad 14 \end{array}$$

$$\boxed{x = \frac{3}{2}}$$

Check:

$$\frac{1}{3}\left(\frac{3}{2}\right) + 2\left(\frac{3}{2}\right) = \frac{7}{2}$$

$$\frac{1}{2} + 3 = \frac{7}{2}$$

$$\frac{7}{2} = \frac{7}{2} \checkmark$$

5) $2(4x - 3) - 8 + 2x = 4$

Check:

6) $12 = 6 - m$

Check:

$$7) -4(-6x-3) = 12$$

$$24x + 12 = 12$$

$$\underline{-12 \quad -12}$$

$$24x = 0$$

$$\boxed{x = 0}$$

check!

$$-4(-6(0)-3) = 12$$

$$(4)(-3) = 12 \checkmark$$

$$8) \frac{4}{4}(x-2) + 4 = 5(4)$$

$$\frac{4}{4}(x-2) + 16 = 20$$

$$x-2 + 16 = 20$$

$$\underline{-16 \quad -16}$$

$$x-2 = 4$$

$$\underline{+2 \quad +2}$$

$$\boxed{x = 6}$$

9) A repair bill for your car is \$553. The parts cost \$265 and the labor cost \$48 per hour. Write and solve an equation to find the number of hours of labor spent repairing the car.

$$265 + 48x = 553$$

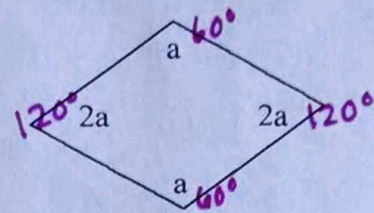
$$\underline{-265 \quad -265}$$

$$48x = 288$$

$$x = 6$$

Six hours were spent working on the car

10) Find the measure of each angle if the sum of the angles is 360 degrees. +



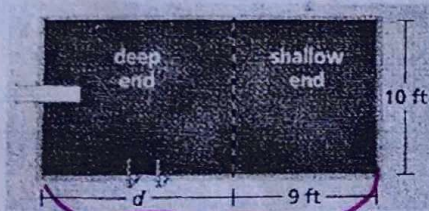
$$2a + a + 2a + a = 360$$

$$6a = 360$$

$$a = 60^\circ$$

Check:

11) The area of the surface of the swimming pool is 210 square feet. What is the length, d , of the deep end (in feet)?



$$d + 9$$

$$A = l \cdot w$$

$$210 = 10(d + 9)$$

$$210 = 10d + 90$$

$$120 = 10d$$

$$\boxed{d = 12}$$

The length of the deep end is 12 ft

12) Error Analysis. Describe and correct the error in the problem below.

$$-2(7-y) + 4 = -4$$

$$-14 - 2y + 4 = -4$$

$$-10 - 2y = -4$$

$$-2y = 6$$

$$y = -3$$

The negative was not distributed properly

$$-2(7-y) + 4 = -4$$

$$-14 + 2y + 4 = -4$$

$$2y - 10 = -4$$

$$2y = 6$$

$$\boxed{y = 3}$$

13) Write down 3 goals you have for the 2015 - 2016 school year ☺

Calculator MUST KNOWS

How do I turn the calculator off? 2nd ON

What does the 2nd button allow me to access? all blue applications

Locate the x² button. Where is it? on left side, halfway down

How would I access the square root symbol? 2nd x²

What key(s) do you have to press in order to evaluate x² - 3 where x = -5? (-5)² - 3

Are the parentheses important in this problem? Why or why not?

Yes - they group the -5 together

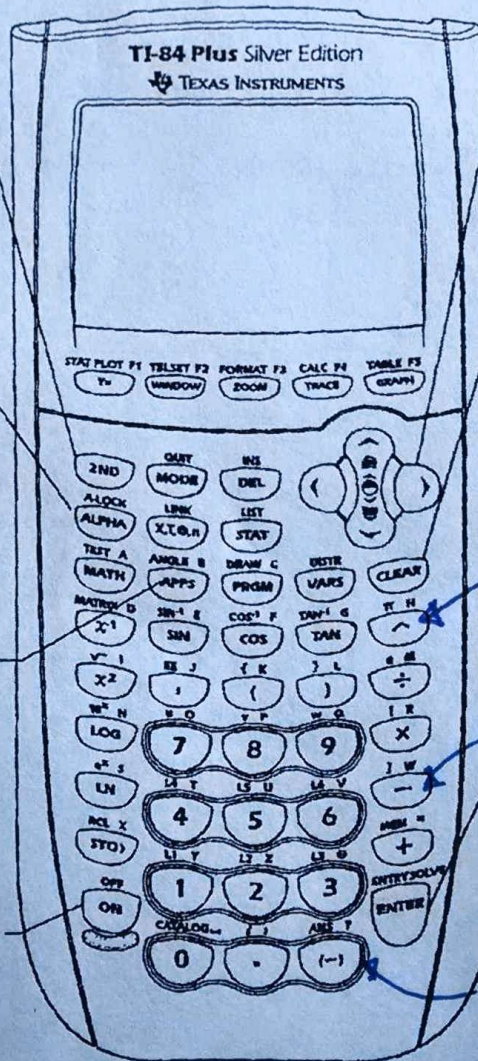
Is there a difference between a minus sign and a negative sign on the calculator? yes

Write an expression where you would use the minus sign. 3 - 10

Write an expression where you would use the negative sign. -2 + 6

How do I clear the calculator? 2nd + 7 12

When should I clear the calculator? at the end of each class



2nd Provides access to the function or character shown above each key.

ALPHA Provides access to the characters shown above each key.

APPS Displays a menu that lists Applications installed on the TI-84 Plus.

ON Turns on the TI-84 Plus.

← → ↓ ↑ Let you move the cursor in four directions.

CLEAR Clears (erases) the entry line or deletes an entry and answer on the home screen.

ENTER Evaluates an expression, executes an instruction, or selects a menu item.

Make fraction

ALPHA → Y = → ENTER

decimal → Fraction

MATH → ENTER → ENTER

3⁴ exponents
3⁻⁴

minus sign

negative

Welcome to the world of Calculators!

Enter the following expressions into your calculator and answer the questions.

1) $15 \bullet -4 \div 3$ _____

2) $24^2 + 16^3$ _____ Which key(s) do you hit to get an exponent of 3?

3) $\sqrt{15625}$ _____ Which key(s) do you hit to get the square root symbol?

4) What is .4033333333 as a fraction? _____ Which key(s) do you hit to get the fraction?

5) $\frac{3^3 + 15 \bullet -3}{\frac{3}{4}}$ = _____

6) $\frac{(3^3 + 15 \bullet -3)}{\left(\frac{3}{4}\right)}$ = _____ Are the answers from 4 and 5 the same? Why or why not?

Use your calculator to evaluate the following expressions. Enter the entire expression before hitting ENTER so that you make yourself practice the use of hidden parenthesis. Check your work by comparing with a classmate. In the box with each problem, enter the expression just as you did in the calculator.

7) $b^3 + a$, where $b = 3$ and $a = -2$

8) a^2 , where $a = -33$

9) $\frac{b^2 - 5}{2}$, where $b = -7$

10) $\sqrt{b^2 + 2ac}$, where $a = 1$, $b = -2$ and $c = -8$

11) $\frac{b + \sqrt{b^2 - 4ac}}{2}$, where $a = 4$, $b = -7$ and $c = -2$