

Name: _____

Key

**UNIT 3 ASSESSMENT REVIEW
SOLVING EQUATIONS**

* if you have VOBs
Variable + constant = var + constant
you must cross out (undo) from
each side so you get
variable = constant

Solve the following equations. Check your work with a calculator.

1. $2(3x-4)-8=-40$ DISTR

$6x-8-8=-40$ CLT

$$\begin{array}{r|l} 6x-16 & -40 \\ +16 & +16 \\ \hline 6x & -24 \\ \hline x & = -4 \end{array}$$

$x = -4$

3. $\frac{3}{4}(8x-16)=5(8-2x)$ DISTR

$6x-12=40-10x$ VOBs

$$\begin{array}{r|l} 6x-12 & 40-10x \\ +10x+12 & +12+10x \\ \hline 16x & = 52 \\ \hline 16 & 16 \end{array}$$

$x = 3.25$

5. $5(3x-4)-3.5=7x-2.5$ DISTR

$15x-20-3.5=7x-2.5$ CLT

$$\begin{array}{r|l} 15x-23.5 & 7x-2.5 \\ -7x+23.5 & -7x+23.5 \\ \hline 8x & = 21 \\ \hline 8 & 8 \end{array}$$

$x = 2.625$

2. $3x-(2x+5)=-2x+9-4x$ DISTR

$3x-2x-5=-2x+9-4x$ CLT

$$\begin{array}{r|l} x-5 & -6x+9 \\ +4x+5 & +4x+5 \\ \hline 3x & = 14 \\ \hline x & = 2 \end{array}$$

$x = 2$

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

$-9+3x+4x-8=8x-5$ CLT

$$\begin{array}{r|l} 7x-17 & 8x-5 \\ -7x+5 & -7x+5 \\ \hline -12 & = x \end{array}$$

$x = -12$

6. $\frac{3}{5}x+7=10$

$$\begin{array}{r|l} \frac{3}{5}x+7 & 10 \\ -7 & -7 \\ \hline \frac{3}{5}x & = 3 \\ \hline x & = 5 \end{array}$$

$x = 5$

Simplify:

7. $\frac{2}{3}(6x-9y)+\frac{3}{4}(-8x+4y)$ DISTR

$4x-6y-6x+3y$ CLT

$-2x-3y$

8. $Ax+By=C$, Solve for y
 $-Ax$ $-Ax$ no like terms

$$\begin{array}{r|l} By & C-Ax \\ \hline y & = \frac{C-Ax}{B} \end{array}$$

9. $C=2\pi r$, Solve for r

$$\begin{array}{r|l} C & 2\pi r \\ \hline r & = \frac{C}{2\pi} \end{array}$$

10. If $(x, -5)$ is a solution to $3x + 4y = -29$, substitute in -5 for 'y'

What is the value of x ? $3x + 4(-5) = -29$ Simplify

$$\begin{array}{r|l} 3x - 20 & = -29 \\ +20 & +20 \\ \hline 3x & = -9 \\ \hline x & = -3 \end{array}$$

$$x = -3$$

11. Olivia purchases a DVD movie priced at x dollars. The sales tax is 6.5% → must convert % to decimal $\frac{6.5}{100} = 0.065$

a. Write an expression to represent the total cost of the movie.

Total = price + tax $x + 0.065x$

b. If the movie is priced at \$21.99, what is the total price of the movie, including tax?

$$T = 21.99 + 0.065(21.99)$$

$$T = 23.42$$

* be sure to round correctly

12. A model airplane flies 18 feet in 2 seconds. How many feet does it fly in one hour? Proportion

feet
seconds

~~$$\frac{18}{2} = \frac{x}{3600}$$~~

$$\frac{2x}{2} = \frac{64800}{2}$$

must convert hour to seconds
1 hr = 60 min
1 min = 60 sec
1 hr = 3600 sec

$$x = 32400 \text{ feet}$$

13. Coach Torres wants to purchase football t-shirts for his team. The printing company charges \$300 dollars for the first 30 t-shirts. The charge for additional shirts is six times the difference between the number of shirts and 30.

a. Write an equation that Coach Torres can use to determine t , the number of shirts he can buy if he spends c dollars.

$$c = 300 + 6(t - 30)$$

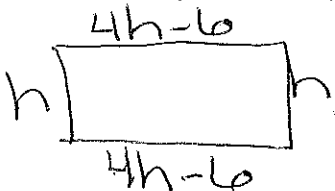
b. If Coach Torres has \$660 in his budget, how many t-shirts can he buy? $c = 660$ substitute

$$\begin{array}{r} 660 = 300 + 6(t - 30) \text{ subst.} \\ 660 = 300 + 6t - 180 \text{ CLT} \\ -300 \quad -180 \\ \hline 340 = 6t \\ \hline t = 90 \end{array}$$

$$90 \text{ t-shirts}$$

14. The base of a rectangle is 6 centimeters less than four times the height. If the perimeter of the rectangle is 38 centimeters, what is the height?

Write an equation, simplify and solve.



$$\begin{array}{r} P = (4h - 6) + (4h - 6) + h + h \text{ CLT} \\ 38 = 10h - 12 \\ +12 \quad +12 \\ \hline 50 = 10h \\ \hline h = 5 \end{array}$$

$$5 \text{ cm}$$

$$\text{Base} = 4(5) - 6 = 14 \text{ cm}$$