* Use Calculators!

Equations Review for QUIZ coming soon!

I. Determine if the number is a solution or not by substituting the value for the variable. Write YES or NO to indicate whether the value is a solution.

1. $x - 12 = 4$, for $x = 15$ (replace x with 15)

$15 - 12 = 4$
$3 = 4$
No!

2. $3x + 8 = 20$, for $x = 2$

$3 \cdot 2 + 8 = 20$
$6 + 8 = 20$
No

3. $\frac{x}{3} = 6$, for $x = 2$

$\frac{2}{3} = 6$
No

4. $x + 6 = 11$, for $x = 5$

$5 + 6 = 11$
yes

II. Solve the equation. You need to show work, either showing the inverse operation or Drawing a BOX. Check your solution to be sure that your answer is correct.

5. $n + 3\frac{3}{5} = 7$

n	$= 3\frac{2}{5}$
$+3\frac{3}{5}$	$-3\frac{3}{5}$
7	7

$n = 3\frac{2}{5}$

6. $3.5x = 42$

x	$= 12$
$\cdot 3.5$	$\div 3.5$
42	42

$x = 12$

7. $m - 18 = 88$

m	$= 106$
-18	$+18$
88	88

$m = 106$

8. $\frac{a}{5} = 10$

a	$= 50$
$\div 5$	$\cdot 5$
10	10

$a = 50$

Translate the words into an equation (chunk it into parts) then solve the equation and check your answer.

9. The product of a number and 12 is equal to 480. What is the value of the number?

Equation: $12n = 480$

n	$=40$
$\cdot 12$	$\div 12$
480	480

Solution: $n = 40$

10. Three less than a number is 52. What is the value of the number?

Equation: $n - 3 = 52$

n	$=55$
-3	$+3$
52	52

Solution: $n = 55$

For each word problem below, first identify the variable (the unknown thing), then write an equation, then solve the equation.

11. Erin has 5 cd towers which altogether hold 475 cd's. What is the amount of cd's in each tower?	Variable: x = # cds in a tower Equation: $5x = 475$ x | $=95$ $\cdot 5$ | $\div 5$ 475 | 475 Solution: $x = 95$
12. Shelly only bought a poster at the zoo for \$15, and now has \$7 left. What amount of money did Shelly take to the zoo?	Variable: m = \$ taken to zoo Equation: $15 + 7 = m$ $\quad m - 7 = 15$ $m - 15 = 7$ Solution: $m = \$22$
13. All the seats in the theater are divided into 8 groups. There are 40 seats in each group. How many seats are in the theater?	Variable: x = seats in theater Equation: $\frac{x}{8} = 40$ or $\frac{x}{40} = 8$ or $40(8) = x$ Solution: $x = 320$

14. A hot air balloon flew 8 miles per hour. How many hours did it take the balloon to travel 72 miles?	Variable: h = # hours Equation: $8h = 72$ or $h = \frac{72}{8}$ Solution: $h = 9$
15. Mike has 35 baseball cars. If it takes 60 baseball cards to fill a collector's book, how many more baseball cards does Mike need?	Variable: b = # baseball cards needed to fill book Equation: $60 - 35 = b$ or $b + 35 = 60$ Solution: $b = 25$
Challenge 16) Colorado is almost a perfect rectangle on a map. Its border from east to west is 387 miles, and its area is 104,247 square miles. What is the length of the border from north to south rounded to the nearest tenth? *Draw a picture!	Variable: l = length n/s Equation: ~~$l+l+387+387=104247$~~ $A = 104247$ l $\frac{104247}{387} = l$ or $387l = 104247$ 387 Solution: $l = 269.4$
17. The Empire State Building is 381m tall. At the Grand Canyon's widest point, 76 Empire State Buildings would fit end to end. Write and solve an equation to find the width of the Grand Canyon at this point.	Variable: W = width of GC Equation: ~~$76w = 3$~~ $76(381) = W$ Solution: $W = 28,956$ m
18. Air typically has about 4,000 bacteria per cubic meter. If your bedroom is 40 cubic meters, about how many bacteria would you expect to be in the air in your bedroom?	Variable: b = # bacteria in bedroom Equation: $4000(40) = b$ Solution: $b = 160,000$ ↑ yuck!