8/31 Algebra I - Downing

Bellwork Solve 2 ways

$\frac{8}{5}x + 7 = 15$
$-7 \quad -7$

$\left(\frac{5}{8}\right)\frac{8}{5}x = \frac{8}{1}\left(\frac{5}{8}\right)$

$x = \frac{40}{8} = 5$

OR

$\frac{8}{5}x + 7 = 15$
$-7 \quad -7$

$(5)\frac{8}{5}x = 8(5)$

$\frac{8}{8}x = \frac{40}{8}$

$x = 5$

OR

$5\left(\frac{8}{5}x + 7\right) = 15(5)$

$8x + 35 = 75$
$-35 \quad -35$

$\frac{8}{8}x = \frac{40}{8}$

$x = 5$

Addition - Sum, more than, add, plus
Subtraction - Difference, less than, subtract, take away, minus
Multiplication - Product times
Division - Quotient

Application WS #1 - Go over #1, 2, 3, 5 together
see attached
#6, 7, 9 done by students at the board.

Application Problems WS - Go over #2, 3 - see attached

Proficiency Check #1 - Solving Equations

Name: Downing Date: 8/31 Hour:

Algebra 1 – Downing
Application WS #1

Write and solve the equation for each of the problems.

$\star \frac{1}{3}x = \frac{1x}{3} \neq \frac{1}{3x}$

1. The difference of one-third of a number and 8 is 1. What is the number?

$\frac{1}{3}x - 8 = 1$
$+8 \quad +8$
$(3)\frac{1}{3}x = 9(3)$
$x = 27$

2. One more than sixteen times a number is 81. What is the number?

$+16x = 81$
$-1 \quad -1$
$\frac{16x}{16} = \frac{80}{16}$
$x = 5$

3. One seventeenth of a number subtracted by 17 is 42. What is the number?

$\frac{1}{17}x - 17 = 42$
$+17 \quad +17$
$(17)\frac{1}{17}x = 59(17)$
$x = 1003$

4. Maggie's brother is three years younger than twice her age. If the sum of their ages is 24, how old is Maggie? How old is her brother?

5. Stephen belongs to a movie club where he pays an annual fee of $39.95 and then rents DVDs for $0.99 each. In one year, Stephen spent $55.79. How many DVDs did he rent last year?

Base

$39.95 + .99x = 55.79$
$-39.95 \quad -39.95$
$\frac{.99x}{.99} = \frac{15.84}{.99}$
$x = 16$ DVDs

6. Kate is saving to buy a stereo system that costs $350. So far, she has saved $180 and adds $17 to her savings each week. How many more weeks must she save to be able to buy the stereo?

$180 + 17x = 350$
$-180 \quad -180$
$17x = 170$
$\frac{17x}{17} = \frac{170}{17}$

$x = 10$ weeks

7. Three times the population density of Missouri minus 26 equals the population density of California, which is 217. What is the population density of Missouri?

$3x - 26 = 217$
$+26 \quad +26$
$3x = 243$
$\frac{3x}{3} = \frac{243}{3}$

$x = 81$ population density

8. The sum of two angles is 128°. Angle A is 3 times the measure of angle B. Angle B is the sum of a number and 2. What are the measures of the 2 angles?

9. For her cell phone plan, Vera pays $32 a month and $0.75 for each minute over what the plan allows. If she paid $47 for her cell phone bill last month, how many minutes did she go over her plan?

$32 + .75x = 47$
$-32 \quad -32$
$.75x = 15$
$\frac{.75x}{.75} = \frac{15}{.75}$

$x = 20$ min

10. Tina sold cookies at her club's bake sale. She spent $18.50 on supplies and charged $0.75 per cookie. If she made a profit of $24.25, how many cookies did she sell?

Name: Downing Date: 8/31 Hour:

Algebra 1
Application Problems

Write and solve an algebraic equation for each of these problems.

1. Alex belongs to a music club. He pays $19.95 for a student discount card which allows him to buy CDs for $3.95 each. After one year, Alex has spent $63.40. How many CDs did Alex buy?

2. A certain painting company charges $250 base plus $16 per hour. Another painting company charges $210 base plus $18 per hour. How long is a job for which the two companies will charge the same amount?

1st Company: $250 + 16x$ — 2nd Company: $210 + 18x$

$250 + 16x = 210 + 18x$

$-16x \quad -16x$

$250 = 210 + 2x$

$-210 \quad -210$

$\frac{40}{2} = \frac{2x}{2}$

$x = 20$

At 20 hours the companies will cost the same amount

3. One long-distance phone company charges 36 cents plus 3 cents per minute for a call. Another long-distance company charges 6 cents per minute for a call. How long is a call that costs the same amount, no matter which company is used? What is the cost of that call?

Comp A: $.36 + .03x$ — Comp B: $.06x$

$.36 + .03x = .06x$

$-.03x \quad -.03x$

$\frac{.36}{.03} = \frac{.03x}{.03}$

$x = 12 \text{ min}$

Cost $= .06(12) = .72$

The call will cost $.72

At 12 min. the companies will charge the same amount.

4. Alice and Ben's ages are consecutive whole numbers. The sum of their ages is 53. What is the age of each person?

5. Carol, Dan and Edna's ages are consecutive whole numbers. The sum of their ages is 27. What is the age of each person?

6. The sum of the measures of two angles is 180°. One angle measures 3x and the other angle measures 2x - 25. Find the value of x.