Worksheet

1) Find 3 consecutive odd integers
   \[ X: \text{1st consecutive odd integer} \]
   \[ x + 2 = \text{2nd} \]
   \[ x + 4 = \text{3rd} \]
   \[ \text{Sum is 69} \]

2) \[ x + (x+2) + (x+4) = 69 \]
   \[ 3x + 6 = 69 \]
   \[ 3x = 63 \]
   \[ x = 21 \]
   \[ x + 2 = 23 \]
   \[ x + 4 = 25 \]
1) Find cost of meals
   
2) \[ m = \text{meals cost} \]

3) Equation
   \[ \text{meals} + \text{tax} + \text{tip} + \text{total cost} \]
   \[ M + .08M + .10M = 30.21 \]

\[
\frac{1.18M}{1.18} = \frac{30.21}{1.18} \]

\[ M = 25.60 \]

\[ 25.60 + .08(25.60) + .10(25.60) = 30.21 \]
(3) 1) Find his basic hourly wage

2) \( w = \text{hourly rate} \)

3)\[
\begin{align*}
\text{Equation} & : 40w + 20(1.5w) = 581.50 \\
\text{Regular} & : 40w \\
\text{Overtime} & : 3w = 581.50 \\
78w & = 581.50 \\
\frac{78w}{70} & = \frac{581.50}{70} \\
w & = 8.45
\end{align*}
\]
1) Find out when Plan B is cheaper.
   Find # of hours in need to play to make Plan B cheaper.

2) \( h = \# \text{ of hrs. played per month} \)

3) Plan B < Plan A
   \[ 12h < 8h + 80 \]
   \[ -8h \]
   \[ 4h < \frac{160}{9} \]
   \[ h < 2.5 \text{ hr.} \]
5)

L = 5 + 2w = 35

W = width

15

Perimeter = 80 units

1) Find Length & Width

2) \( W = \) width

\( 2W + S = \text{Length} \)

3) Equation

\( \text{Perimeter} = 100 \)

\( 2W + 2(2W + S) = 100 \)

\( 2W + 4W + W = 100 \)

\( 6W + W = 100 \)

\( 6W = 90 \)

\( \frac{6W}{6} = \frac{90}{6} \)

\( W = 15 \)
\[ P = 2L + 2w \]

\[ L = 5 \]

\[ 40 = 2(5) + 2w \]

\[ 40 = 10 + 2w \]

\[ 30 = 2w \]

\[ 15 = w \]

\[ P = 40 \]

\[ A = \frac{2a + b}{-c} \]

\[ A = 15 \]

\[ a = 3 \]

\[ b = 5 \]

\[ 15 = \frac{2(5) + 5}{-c} \]

\[ 15 = \frac{15}{-c} \]

Clean Function

\[ -1(15 = \frac{11}{-c}) \]

\[-15c = \frac{11}{-15} \]

\[ c = \frac{11}{15} \]
\[
5y - 3x = 15
\]

\[
\frac{-3x}{3} = \frac{-5y + 15}{-3}
\]

\[
x = \frac{-5y + 15}{-3}
\]

\[
= \frac{5y}{3} - 5
\]

\[
A = h(x + 3b)
\]

\[
A = hx + 3bh
\]

\[
A - 3bh = \frac{hx}{h}
\]

\[
\frac{A - 3bh}{h} = x
\]

\[
\frac{A}{h} - 3b = x
\]

\[
\frac{A}{h} - \frac{3bh}{h}
\]
\( S = \frac{a-b-x}{a+b} \)

\[-a+b+S = \frac{-x}{-1} \]

\[-\frac{a+b+S}{-1} = x \]

\[x = -a + \frac{b}{-1} + \frac{S}{-1} = a-b-S \]

\[\frac{A}{3b} = \frac{3bx}{3b} \]

\[\frac{A}{3b} = x \]
33. **Building a Bookcase**  A bookcase is to have four shelves, including the top, as shown. The height of the bookcase is to be 3 feet more than the width. Find the width and height of the bookcase if only 30 feet of lumber is available.

\[ \text{width} = 4 \]

\[ \text{height} = 7 \]

\[ 4(4) + 2(7) = 30 \text{ ft} \]

Equation:

\[ \frac{4 \text{ shelves} + 2 \text{ sides}}{4x + 2(4x + 3)} = 30 \]

\[ 4x + 2x + 6 = 30 \]

\[ 6x + 6 = 30 \]

\[ -6 -6 \]

\[ 6x = 24 \]

\[ \frac{6x}{6} = \frac{24}{6} \]

\[ x = 4 \]
37. **Fenced-In Area**  A rectangular area is to be fenced in along a straight river bank as illustrated. The length of the fenced-in area is to be 5 feet greater than the width, and the total amount of fencing to be used is 71 feet. Find the width and length of the fenced-in area.

![Diagram of a rectangular area fenced along a river bank]

1) Find Length & Width

2) \( w = \text{width} = 11 \)
\( L = w + 5 = 16 \)

3) **Equate**

\[
\begin{align*}
5w + 1(w + 5) &= 71 \\
5w + w + 5 &= 71 \\
s(21) + 16 &= 71 \\
6w &= 66 \\
\frac{6w}{6} &= \frac{66}{6} \\
w &= 11
\end{align*}
\]
27. **Parallelogram** In a parallelogram the opposite angles have the same measures. Each of the two larger angles in a parallelogram is 20° less than 3 times the smaller angles. Find the measure of each angle.

![Diagram of parallelogram with angles labeled: 3x - 20° for smaller angle, 50° for larger angle.]

**Equation**

\[
\text{Sum of l's of a 4-sided figure is } 360°
\]

\[
x + x + 3x - 20 + 3x - 20 = 360°
\]

\[
8x - 40 = 360
\]

\[
8x = 400
\]

\[
x = 50°
\]
Review

1. \( S + 4w \)

2. \( x = \text{width} \)
   \( \text{Length} = 6w = S \)

3. \( \bigcirc \) Either \( x = \text{Steve} \)
   \( 3.6 - x = \text{Chris} \)

4. \( x = \text{Miles Travelled In} \)

5. \( \bigcirc \) Total Cost = \( 25 + .90x \)

5. \( \bigcirc \) Last Year \( u \)
   \( \text{This Year} \)
   \( u = .11u \)
   \( .89u \)

6. \( \bigcirc \) Find 2\#s

\( x = 1\text{st \#} = 4 \)
\( 9x = 2\text{nd \#} = 36 \)

\( \text{Sum} = 40 \)
\( x + 9x = 40 \)
\( 10x = 40 \)
\( \frac{100}{10} \)
\( x = 4 \)
1) What are locker #'s

2) \( x = \text{1st locker #} = 22 \)

\( x + 1 = \text{2nd locker #} = 23 \)

3) \( x + x + 1 = 145 \)

\[
\begin{align*}
2x + 1 & = 145 \\
-1 & \\
2x & = 144 \\
\frac{2x}{2} & \\
x & = 72
\end{align*}
\]
1) Find # of yrs. To get Employee Count to 3300

2) $y = \# \text{ of yrs.}$

$y$ Equation

\[
\begin{align*}
\text{Initial} & - \text{Decrease} & \text{Final Employee Count} \\
5100 - 250y & = 3300 & -5100 \\
-250y & = -1800 & -250 \\
\frac{-250y}{-250} & = \frac{-1800}{-250} \\
y & = +7.2 \text{ yrs.}
\end{align*}
\]
9) 1) Find # of copies made
2) \( C = \text{cost of each copy} \)
3) \[ \text{Equation} \]
   \[
   \left( \frac{\text{cost of machine}}{220} + \frac{\text{cost of copies}}{.05C} \right) = 312.5 \]
   \[-220 \cdot 220\]
   \[
   \frac{.05C}{.05} = 92.5 \]
   \[
   C = 185.00 \text{ copies} \]
1) Find Wage Before Cut
2) \( x = \) Wage Before Cut
3) \( \text{Equation} \)

\[
\text{Old Salary} - \text{Cut} = \text{New Salary}
\]

\[
x - 0.05x = 31,400
\]

\[
0.95x = \frac{31,400}{0.95}
\]

\[
x = 33,052.63
\]