71.

$y = 1$

66. $(1, 5)$ $m = 3$

$y - y_1 = m(x - x_1)$

$y - 5 = 3(x - 1)$

70. $(3, 4)$

$m = -\frac{1}{2}$

$y - y_1 = m(x - x_1)$

$y - 4 = -\frac{1}{2}(x - 3)$

$y - 4 = -\frac{1}{2}x + \frac{3}{2}$

$+4 \qquad +4$

$y = -\frac{1}{2}x + \frac{11}{2}$

$-6x - 12y = 11$

$+6x \qquad +6x$

$\frac{-12y}{-12} = \frac{6x}{-12} + \frac{11}{-12}$

$y = -\frac{1}{2}x - \frac{11}{12}$

62. $(3, -4)$

$x = -10$

a) $x = 3$ b) $y = -4$

3.2 Word Problems

Number Problems

Example: The sum of 3 consecutive integers is 90. What are the integers?

1st integer: x
2nd integer: $x+1$
3rd integer: $x+2$

Even: $2x$
Odd: $2x+1$

$x + x + 1 + x + 2 = 90$

$3x + 3 = 90$

$-3 \quad -3$

$\frac{3x}{3} = \frac{87}{3}$

$x = 29$

29, 30, 31

Example: Find a number such that four times the difference of the number and 111 is 364.

~~$4x = 111$~~

$4(x - 111) = 364$

$4x - 444 = 364$

$+444 \quad +444$

$\frac{4x}{4} = \frac{808}{4}$

$x = 202$

Money and Percentage Problems

Example: The sale price of a coat is $48. If the sale price is 20% off the original price, what was the original price?

original − original · sale% = sale price

$x - x \cdot .2 = 48$

$1x - .2x = 48$

$.8x = 48$

$\frac{.8x}{.8} = \frac{48}{.8}$

$x = \$60$

Example: As a lawyer, you earn a $500 retainer (flat fee) plus $22 per hour. If you made $797, how many hours did you work?

$500 + 22x = 797$

$-500 \quad -500$

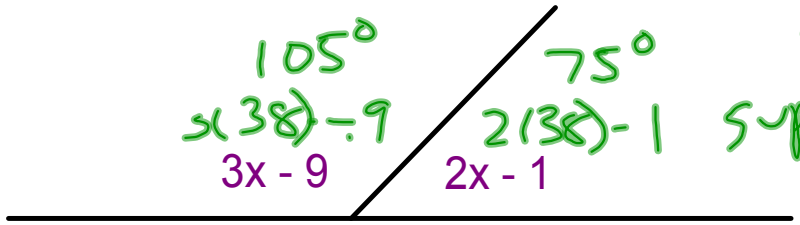
$22x = 297$

$\frac{22x}{22} = \frac{297}{22}$

$x = 13.5$ hrs.

Geometry Problems

Example: Find the measure of each angle:



105°
3(38) - 9

75°
2(38) - 1

complimentary = add to 90°

supplimentary = add to 180°

$3x - 9 + 2x - 1 = 180$

$5x - 10 = 180$

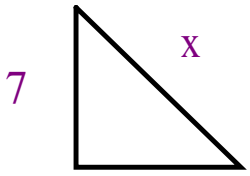
$+10 \quad +10$

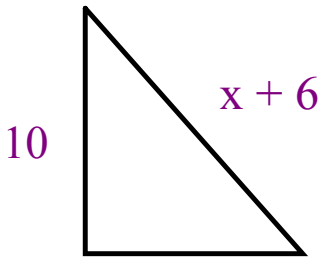
$5x = 190$

$\frac{5x}{5} = \frac{190}{5}$

$x = 38$

Example: Solve for x. Assume the triangles are similar.





$\frac{7}{10} = \frac{x}{x+6}$

$\frac{7}{x} = \frac{10}{x+6}$

$7(x+6) = 10x$

$7x + 42 = 10x$

$-7x \quad -7x$

$42 = 3x$

$\frac{42}{3} = \frac{3x}{3}$

$x = 14$

Homework: p.182, 62 - 90 even

Study for quiz!