TAKE NOTES ON LINED PAPER. COPY PROBLEM (IMPORTANT INFORMATION) DOWN FIRST

Section 1.1 Modeling and Equation Solving

Ex. 1) The engineers at an auto manufacturer pay students $0.08 per mile plus $25 per day to road test their new vehicles.

a) Write a LINEAR EQUATION to model the situation. Define variables! $y = mx + b$

b) How much did the auto manufacturer pay Sally to drive 440 miles in one day?

C) John earned $93 test-driving a new car in one day. How many miles did he drive?

a) y = total pay student receives, in dollars
x = # of miles driven in a day

$y = 25 + 0.08x$

b) $y = 25 + 0.08(440)$

$\$60.20$

(440, 60.20) on graph

c) $93 = 25 + 0.08x$

$68 = 0.08x$

$850 = x$

miles

(850, 93) on graph

X 2) Solve the following equations

a) $2x^2 - 5x + 2 = (x-3)(x-2) + 3x$

$x^2 - 5x + 6 + 3x$

$2x^2 - 5x + 2 = x^2 - 2x + 6$

$-x^2 \quad +2x \quad -6 \qquad -x^2 + 2x - 6$

$x^2 - 3x - 4 = 0$

$(x-4)(x+1) = 0$

$x = 4 \qquad x = -1$

b) $x(x+7) = 14$

$x^2 + 7x = 14$

$x^2 + 7x - 14 = 0$

$$x = \frac{-7 \pm \sqrt{(7)^2 - 4(1)(-14)}}{2(1)}$$

$$\frac{-7 \pm \sqrt{105}}{2}$$

$$-\frac{7}{2} \pm \frac{\sqrt{105}}{2}$$

105
^
5 · 21
neither perfect sq
cannot simplify

c) $\frac{144}{16} = \frac{16t^2}{16}$

$9 = t^2$

$\pm 3 = t$

* If t represents time only take the positive answer.

d) $\sqrt{(x-9)^2} = \sqrt{49}$

$x - 9 = \pm 7$

* don't forget the +/-

$x = 9 + 7 = \boxed{16}$

$x = 9 - 7 = \boxed{2}$