Name: Key **TA:**_____

Math 11 Pre-Calculus LG 11 Ver B

1. Solve.

a) $\frac{x}{6}-\frac{5}{x}=0$ $\quad 6x$

$x^2-30=0$

$x^2=30$

$x=\pm\sqrt{30}$

b) $\frac{x+3}{2}+\frac{x-1}{3}=2$ $\quad 6$

$3(x+3)+2(x-1)=12$

$3x+9+2x-2-12=0$

$5x-5=0$

$5(x-1)=0$

$x=1$

c) $1+\frac{2x}{x+4}=\frac{3}{x-1}$ $\quad (x+4)(x-1)$

$(x+4)(x-1)+2x(x-1)=3(x+4)$

$x^2+3x-4+2x^2-2x-3x-12=0$

$3x^2-2x-16=0$

$(x+2)(3x-8)=0$

$x=-2,\ \frac{8}{3}$

d) $\frac{x}{x+4}=\frac{2-x}{x^2+3x-4}+\frac{1}{x-1}$

$\frac{x}{x+4}=\frac{2-x}{(x+4)(x-1)}+\frac{1}{x-1}$ $\quad (x+4)(x-1)$

$x(x-1)=2-x+x+4$

$x^2-x=6$

$x^2-x-6=0$

$(x-3)(x+2)=0$

$x=3,-2$

2. Jerry jogged 9 km in an hour. He covered the last 4 km at a speed that was 2 km/h slower than his speed over the first 5 km. What was his speed over the first 5 km?

Remember $time = \frac{distance}{speed}$

Distance A
5 km
speed x
$t = \frac{5}{x}$

Distance B
4 km
speed $x-2$
$t = \frac{4}{x-2}$

$$\text{Total Time} = \frac{5}{x} + \frac{4}{x-2}$$

$$x(x-2)\left(1 = \frac{5}{x} + \frac{4}{x-2}\right)$$

$$x^2 - 2x = 5x - 10 + 4x$$

$$x^2 - 11x + 10 = 0$$

$$(x-10)(x-1) = 0$$

$x = 10$ ~~$x = 1$~~

$$\boxed{x = 10 \frac{km}{hr}}$$