

Linear Equations Assign 2 - Calculator Key

1) a) $6(x-25) = -6.82$
 $6x - 150 = -6.82$
 $+150 \quad +150$ ✓
 $\frac{6x}{6} = \frac{143.18}{6}$
 $x = 23.86$ ✓

b) $-0.22(6x+10) = 0.74(4x-2)$
 $-1.32x - 2.2 = 2.96x - 1.48$
 $-2.96x \quad -2.96x$ ✓
 $-4.28x - 2.2 = -1.48$
 $+2.2 \quad +2.2$
 $\frac{-4.28x}{-4.28} = \frac{0.72}{-4.28}$
 $x = -0.17$ ✓

2) a) $-5.6 = -2(x+1.3)$
 $-5.6 = -2x - 2.6$
 $+2.6 \quad +2.6$ ✓
 $\frac{-3}{-2} = \frac{-2x}{-2}$
 $1.5 = x$ ✓

check: $-5.6 = -2(1.5+1.3)$
 $\downarrow = -2(2.8)$
 $-5.6 = -5.6$ ✓

3b) $7.8 = 5(x-8) + 3(x+10)$
 $7.8 = 5x - 40 + 3x + 30$ ✓
 $7.8 = 8x - 10$
 $+10 \quad +10$
 $\frac{17.8}{8} = \frac{8x}{8}$
 $x = 2.225$ ✓

~~check: $7.8 = 5(2.225-8) + 3(2.225+10)$
 $\downarrow = 5(-5.775) + 3(12.225)$
 $= -28.875 + 36.675$
 $7.8 = 7.8$~~

3) a) $\frac{x+0.77}{-2} = \frac{-0.912}{1}$
 $x+0.77 = 1.824$ ✓
 $-0.77 \quad -0.77$
 $x = 1.054$ ✓

~~check: $\frac{1.054+0.77}{-2} = \frac{-0.912}{1}$
 $\frac{1.824}{-2} = -0.912$
 $-0.912 = -0.912$~~

check:

$$2b) \quad -4.2 \neq \frac{9.2 - x}{-10} \quad (x = 10) \quad -4.2 = \frac{9.2 - 32.8}{-10}$$

$$42 = \frac{9.2 - x}{-10} \quad \checkmark$$

$$\downarrow = \frac{42}{-10}$$

$$\frac{32.8 = x}{-}$$

$$-4.2 = -4.2 \quad \checkmark$$

$$\boxed{-32.8 = x} \quad \checkmark$$

$$4) \quad 4(6-d)8 = 165.6$$

$$(24 - 4d)8 = 165.6 \quad \checkmark$$

$$192 - 32d = 165.6$$

$$-192$$

$$-192$$

$$\frac{-32d = -26.4}{-32} \quad \checkmark$$

$$\boxed{d = 0.825} \quad \checkmark$$

$$5) \quad x - \text{ticket price} \quad \checkmark$$

$$(x+5)6 = 569.94 \quad \checkmark$$

$$6x + 30 = 569.94$$

$$-30 \quad -30$$

$$\frac{6x = 539.94}{6} \quad \checkmark$$

$$x = \$89.99 \quad \checkmark$$

The ticket price is \$89.99 \checkmark

$$6)a) \quad x = 3.2 + 0.5x$$

$$-0.5x \quad -0.5x \quad \checkmark$$

$$\frac{0.5x = 3.2}{0.5} \quad \checkmark$$

$$x = 6.4 \quad \checkmark$$

$$\text{check: } 6.4 = 3.2 + 0.5(6.4)$$

$$\downarrow = 3.2 + 3.2$$

$$6.4 = 6.4 \quad \checkmark$$

$$b) \quad 0.4(8x+6) = 1.2(8x-2)$$

$$3.2x + 2.4 = 9.6x - 2.4 \quad \checkmark$$

$$-9.6x \quad -9.6x$$

$$-6.4x + 2.4 = -2.4$$

$$-2.4 \quad -2.4$$

$$\frac{+6.4x = +4.8}{+6.4} \quad \checkmark$$

$$x = 0.75 \quad \checkmark$$

check :

$$0.4(8(0.75)+6) = 1.2(8(0.75)-2)$$

$$0.4(6+6) = 1.2(6-2)$$

$$0.4(12) = 1.2(4)$$

$$4.8 = 4.8$$

7) a) $0.5x - 0.64 = 0.9x + 0.38$
 $-0.9x \quad -0.9x$

$$-0.4x - 0.64 = 0.38$$

$$+0.64 \quad +0.64$$

$$+0.4x = 1.02$$

$$+0.4 \quad -0.4$$

$$x = -2.55$$

b) $12.4(4x-6) = 8.4(4x+6)$

$$49.6x - 74.4 = 33.6x + 50.4$$

$$-33.6x \quad -33.6x$$

$$16x - 74.4 = 50.4$$

$$+74.4 \quad +74.4$$

$$16x = 124.8$$

$$/16 \quad /16$$

$$x = 7.8$$

6) c) $2.6x - 3.2(3x+4) = 5.3x + 0.4(x+10)$

$$2.6x - 9.6x - 12.8 = 5.3x + 0.4x + 4$$

$$-7x - 12.8 = 5.7x + 4$$

$$-5.7x \quad -5.7x$$

$$-12.7x - 12.8 = 4$$

$$+12.8 \quad +12.8$$

$$-12.7x = 16.8$$

$$+12.7 \quad -12.7$$

$$x = -1.322834646$$

8) $2(1.4n + -0.4) = -0.4(4-3n)$

$$2.8n - 0.8 = -1.6 + 1.2n$$

$$-1.2n \quad -1.2n$$

$$1.6n - 0.8 = -1.6$$

$$+0.8 \quad +0.8$$

$$1.6n = -0.8$$

$$/1.6 \quad /1.6$$

$$n = -0.5$$

9) x - quarters ✓

$$(x + 1360)0.05 = 0.25x$$

$$\begin{array}{r} 0.05x + 68 = 0.25x \\ -0.05x \quad -0.05x \end{array}$$

b) $(1700 \times 0.05) = 85$
 $\times 2$
\$170 ✓

$$\frac{68}{0.20} = \frac{0.20x}{0.20}$$

340 quarters = x

There are 1700 nickels. ✓

10) $A_1 = A_1$
 $lxw = lxw$ ✓
 $(x + 1.5 \times 1.9) = (3 - 0.5x)1.2$ ✓
 $1.9x + 2.85 = 3.6 - 0.6x$
 $+ 0.6x \quad + 0.6x$

11)

	^{up}	12 - x	^{Down}	12 + x
5	6		4	
t	6		4	
d	(12 - x)6		(12 + x)4	

$$\begin{array}{r} 2.5x + 2.85 = 3.6 \\ -2.85 \quad -2.85 \\ \hline 2.5x = 0.75 \\ \frac{2.5}{2.5} \quad \frac{0.75}{2.5} \\ \hline \boxed{x = 0.3} \end{array}$$

$$\begin{array}{r} (12 - x)6 = (12 + x)4 \\ 72 - 6x = 48 + 4x \\ -4x \quad -4x \\ \hline 72 - 10x = 48 \\ -72 \quad -72 \\ \hline -10x = -24 \\ \frac{-10x}{-10} = \frac{-24}{-10} \end{array}$$

$x = 2.4 \text{ km/h}$ ✓

The missing value is x ✓

The current is 2.4 km/h ✓