1.7

ex $13+12 = 12+13$ commutative

ex $-4\cdot(2\cdot 6) = (-4\cdot 2)\cdot 6$ associative

ex $12+(-12) = 0$ inverse

ex $-8.456+0 = -8.456$ identity

ex $3(5t)-3(7r) = 3(5t-7r)$ distributive

Aug 18-2:39 PM

ex $49+199+1+1$

$= 49+1+199+1$

$= 50 + 200$

$= 250$

ex $1846+1293+(-46)+(-93)$

$=1846+(-46)+1293+(-93)$

$=1800+1200$

$=3000$

Aug 18-2:47 PM

ex $9r + 12 - 9r + 1$

$= 9r - 9r + 12 + 1$

$= 0 + 12 + 1$

$= 13$

ex $\left(\frac{4}{5}\right)(-.73)\left(\frac{5}{4}\right)$

$= \left(\frac{4}{5}\right)\left(\frac{5}{4}\right)(-.73)$

$= (1)(-.73)$

$= -.73$

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ex $6(11+8) = 6(11) + 6(8)$

$= 66 + 48$

$= 114$

ex $-11(x+4) = (-11)(x) + (-11)(4)$

$= -11x + (-44)$

$= -11x - 44$

ex $-9(g-4) = (-9)(g) + (-9)(-4)$

$= -9g + 36$

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ex $4s + 4r = 4(s + r)$

ex $13(5w) + 13(4p) = 13(5w + 4p)$

ex $9p + 18 = 9p + 9(2) = 9(p + 2)$

ex $-(9x + 12y) = -9x - 12y$

ex $-(-13x - 15y) = 13x + 15y$

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1.8 like terms – same combination of variables and exponents

$3x^2$

exponent

variable

coefficient

ex $8 + 3(s - 6t) = 8 + 3s - 18t$

no like terms

Aug 18-2:57 PM

ex $-10-(7-14r)$

$= -10-7+14r$

$= -17+14r$

ex $-23y$ coefficient is -23

ex pq " " 1

ex $-t$ " " -1

ex 98 " " 98

ex $15m + 12m = 27m$

ex $-3z - 9z = -12z$

ex $30x + x = 31x$

ex $9x + 7 - 13x + 12 + 8x - 10 = 4x + 9$

ex $-3(2t + 4) + 8(2t - 4)$

$= -6t - 12 + 16t - 32$

$= 10t - 44$

Aug 18-3:02 PM

ex Six times a number, added to the sum of the number and six

$6x + (x+6)$

$= 6x + x + 6$

$= 7x + 6$

Aug 18-3:06 PM

2.1 Linear equation in 1 variable:

$$Ax + B = C$$

($A, B, \& C$ are real #s & $A \neq 0$)

+, −, ×, ÷ each side by some nonzero #.

Aug 18-3:07 PM

ex $x - 4 = 9$ or $x - 4 + 4 = 9 + 4$

$+4 \quad +4$

$x = 13$ $\{13\}$

ex $x + 6 = 10$ or $x + 6 - 6 = 10 - 6$

$-6 \quad -6$

$x = 4$ $\{4\}$

ex $y + 15.5 = -5.1$ or $y + 15.5 - 15.5 = -5.1 - 15.5$

$-15.5 \quad -15.5$

$y = -20.6$ $\{-20.6\}$

ex $9x - 1 = 8x + 4$

$-8x \quad -8x$

$x - 1 = 4$

$+1 \quad +1$

$x = 5 \qquad \{5\}$

or $9x - 1 - 8x = 8x + 4 - 8x$

$x - 1 = 4$

$x - 1 + 1 = 4 + 1$

$x = 5$

ex $-\frac{2}{7}z + 2 = \frac{5}{7}z$

$+\frac{2}{7}z \qquad +\frac{2}{7}z$

$2 = \frac{7}{7}z$

$2 = z \qquad \{2\}$

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ex $-\frac{2}{7}z + 2 = \frac{5}{7}z$

$7\left(-\frac{2}{7}z + 2 = \frac{5}{7}z\right)$

$-2z + 14 = 5z$

$+2z \qquad +2z$

$14 = 7z$

$\frac{14}{7} = \frac{7z}{7}$

$2 = z \qquad \{2\}$

Aug 18-3:14 PM

ex $4x + 3x - 6 - 6x = 10 + 3$

$x - 6 = 13$

$+6 \quad +6$

$x = 19 \quad \{19\}$

ex $(8r - 3) - (7r + 1) = -6$

$8r - 3 - 7r - 1 = -6$

$r - 4 = -6$

$+4 \quad +4$

$r = -2 \quad \{-2\}$

Aug 18-3:15 PM

ex $9(2m-3)-4(5+3m)-5(4+m)=-3$

$18m-27-20-12m-20-5m=-3$

$m-67=-3$

$+67 \quad +67$

$m=64$

$\{64\}$

Aug 18-3:17 PM

2.2 ex $7x = 56$

$$\frac{7x}{7} = \frac{56}{7}$$

$x = 8$ $\{8\}$

ex $5k = -70$

$$\frac{5k}{5} = \frac{-70}{5}$$

$k = -14$ $\{-14\}$

Aug 18-3:19 PM

ex $5x = 0$

$\frac{5x}{5} = \frac{0}{5}$

$x = 0$ $\{0\}$

ex $\frac{x}{5} = 15$

$5 \cdot \frac{x}{5} = 5 \cdot 15$

$x = 75$ $\{75\}$

Aug 18-3:21 PM

ex $\frac{3}{8}x = 9$

$\left(\frac{8}{3}\right)\frac{3}{8}x = 9\left(\frac{8}{3}\right)$

$x = \frac{72}{3} = 24$ $\{24\}$

ex $-\frac{3}{4}k = -21$ $\left(-\frac{4}{3}\right)$

$\left(-\frac{4}{3}\right)$

$k = 28$ $\{28\}$

ex $-x = -\frac{1}{2}$

(-1) (-1)

$x = \frac{1}{2}$ $\left\{\frac{1}{2}\right\}$

Aug 18-3:22 PM

ex $9x + 2x = 121$

$\frac{11x}{11} = \frac{121}{11}$

$x = 11$ $\{11\}$

ex $10x - 6x + 3x = -4$

$\frac{7x}{7} = \frac{-4}{7}$

$x = -\frac{4}{7}$ $\left\{-\frac{4}{7}\right\}$

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ex If twice a # is divided by 5, the result is 4.

$$\frac{2x}{5} = 4$$

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

$$x = 10 \qquad \{10\}$$

Aug 18-3:25 PM

2.3 ex $10p+6 = 12p-4$

$-10p \qquad -10p$

$6 = 2p - 4$

$+4 \qquad +4$

$\frac{10}{2} = \frac{2p}{2}$

$5 = p \qquad \{5\}$

Aug 18-3:26 PM

ex $5(2m+3)-4m = 8m+27$

$10m+15-4m = 8m+27$

$6m+15 = 8m+27$

$-8m \qquad -8m$

$-2m+15 = 27$

$-15 \qquad -15$

$\frac{-2m}{-2} = \frac{12}{-2}$

$m = -6 \qquad \{-6\}$

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ex $3(6-4x) = 2(-6x+9)$

$18 - 12x = -12x + 18$

$+12x \quad +12x$

$18 = 18$

identity

{all real #s}

Aug 18-3:31 PM

ex $6x - 4(x+1) = 2x + 4$

$6x - 4x - 4 = 2x + 4$

$2x - 4 = 2x + 4$

$-2x \qquad -2x$

$-4 = 4$

contradiction

$\emptyset$ or $\{\ \}$

ex $-\frac{5}{6}q-(q-1)=\frac{1}{4}(-q+80)$

$\left[-\frac{5}{6}q-q+1=-\frac{1}{4}q+20\right]\cdot 12$ LCD

$-10q-12q+12=-3q+240$

$-22q+12=-3q+240$

$+3q \qquad +3q$

$-19q+12=240$

$-12 \qquad -12$

$\frac{-19q}{-19}=\frac{228}{-19}$

$q=-12$ $\{-12\}$

Aug 18-3:32 PM

ex $.3(x+15) + .4(x+25) = 25$

$(.3x + 4.5 + .4x + 10 = 25) \cdot 10$ to rid decimals

$3x + 45 + 4x + 100 = 250$

$7x + 145 = 250$

$-145 \quad -145$

$\frac{7x}{7} = \frac{105}{7}$

$x = 15 \quad \{15\}$

ex Two #s have a sum of 26. One of the #s is r.
The other is $26 - r$

ex The product of 2 #s is -3. One of the #s is m.
The other is $\frac{-3}{m}$

ex Chandler is b yrs old.
3 yrs ago: $b - 3$
5 yrs from now: $b + 5$

Aug 18-3:39 PM