Algebra I - Midterm Review (Day 1)

Do Now:

1) Simplify and write in standard form. $\frac{1}{4}x[(4x^2 + 7x) + (x^3 + 9x - 8)]$

$$\frac{1}{4}x\left(x^3 + 4x^2 + 16x - 8\right)$$

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

2) Solve for v. $\frac{K}{1} = \frac{mv^2}{2}$

$$\frac{2K}{m} = \frac{mv^2}{m}$$

$$\sqrt{\frac{2k}{m}} = \sqrt{v^2} \qquad v = \sqrt{\frac{2k}{m}}$$

3) Solve for x. $\frac{x+3}{16} + \frac{1}{4} = \frac{x+6}{8}$

combine one side to create a proportion

$$\frac{x+3}{16} + \frac{4}{4}\left(\frac{1}{4}\right) = \frac{x+6}{8}$$

$$\frac{x+3}{16} + \frac{4}{16} = \frac{x+6}{8}$$

$$\frac{x+7}{16} = \frac{x+6}{8}$$

$$8(x+7) = 16(x+6)$$
$$8x + 56 = 16x + 96$$
$$56 = 8x + 96$$
$$-40 = 8x$$
$$\boxed{x = -5}$$

eliminate denominators by multiplying by the LCD

LCD: 16

$$16\left(\frac{x+3}{16}\right) + 16\left(\frac{1}{4}\right) = \left(\frac{x+6}{8}\right)16$$

$$x + 3 + 4 = 2(x+6)$$
$$x + 7 = 2x + 12$$
$$7 = x + 12$$
$$\boxed{-5 = x}$$