A rock-climbing gym charges nonmembers $16 per day to use the gym and $8 per day for equipment rental. Members pay a yearly fee of $450 for unlimited climbing and $6 per day for equipment rental. Write and solve an equation to find the number of days you must use the gym to pay the same amount.

Equation: $16d + 8d = 450 + 6d$

Solve the equation:
$$24d = 450 + 6d$$
$$-6d \qquad\qquad -6d$$
$$18d = 450$$
$$\frac{18d}{18} = \frac{450}{18}$$
$$d = 25$$

Explain your solution in context: Members & nonmembers pay the same in 25 days.

Solve the following equations for the given variable

$24 + 8x = 8(5x + 8) + 8x$

$$24 + 8x = 40x + 64 + 8x$$
$$24 + 8x = 48x + 64$$
$$\underline{-8x \qquad -8x}$$
$$24 = 40x + 64$$
$$\underline{-64 \qquad\qquad -64}$$
$$\frac{-40}{40} = \frac{40x}{40}$$
$$\boxed{-1 = x}$$

$7(-2k + 4) + {}^-6 = 7k + {}^-20$

$$-14k + 28 + {}^-6 = 7k + {}^-20$$
$$-14k + 22 = 7k + {}^-20$$
$$\underline{+14k \qquad +14k}$$
$$22 = 21k + {}^-20$$
$$\underline{+20 \qquad\qquad +20}$$
$$\frac{42}{21} = \frac{21k}{21}$$
$$\boxed{2 = k}$$

One container starts with 18 cups of water and water is added to the cup at a rate of 2 cups per minute. Another container starts with 110 cups of water and loses water at a rate of 6 cups per minute. After how many minutes will the two containers have the same amount of water in them?

Equation: $18 + 2p = 110 + {}^-6p$

Solve the equation:
$$\underline{+6p \qquad\qquad +6p}$$
$$18 + 8p = 110$$
$$\underline{-18 \qquad -18}$$
$$\frac{8p}{8} = \frac{92}{8}$$
$$p = 11.5$$

Explain your solution in context of the problem: They have the same amount of water in 11.5 minutes.