UNIT RATE QUESTIONS:

1. Aleigha has $4.85 made up of dimes and quarters. If there are 32 coins in all, how many dimes does he have?

2. On a particular evening, there are four times as many seniors at a movie as adults. Adult tickets cost $10 and senior tickets cost $8. If ticket sales are $1554, how many adults and how many seniors go to the movie?

3. On a particular evening, a total of 187 people go to a theatre performance. Adult tickets cost $12 and senior tickets cost $10. If ticket sales are $2156, how many adults and how many seniors go to the theatre?

4. A grocery store is making up a mixture of chocolate covered almonds and M&M's that costs $8/kg. If the chocolate covered almonds cost $13/kg and the M&M's cost $7/kg, how much of each kind are needed to make up a 9 kg mixture?

NUMBER QUESTIONS:

5. Find three consecutive numbers whose sum is -219.

6. Maeve is three times as old as Andrew. In five years, the sum of their ages will be thirty-eight. How old are they today?

7. The length of a rectangle is 3cm longer than its width. The perimeter of the rectangle is 82 cm. How wide is the rectangle? (Recall: the Perimeter of a rectangle is twice the width plus twice the length).

1.

	Dimes	Quarters	Total
¢/coin	10	25	X
No. of coins	d	$32-d$	32
Total ¢	$10d + 25(32-d) = 485$

$$10d + 25(32-d) = 485$$
$$10d + 800 - 25d = 485$$
$$800 - 15d = 485$$
$$-800 \qquad -800$$
$$-15d = -315$$
$$d = 21$$

∴ he has 21 dimes. (and 11 quarters)

2.

	Seniors	Adults	Total
$/ticket	8	10	X
No. of tickets	$4x$	x	X
Total $	$32x + 10x = 1554$

$$42x = 1554$$
$$x = 37$$
$$4x = 148$$

∴ 148 Seniors and 37 adults go to the movie.

3.

	Seniors	Adults	Total
$/ticket	10	12	X
No. of tickets	x	$187-x$	187
Total $	$10x + 12(187-x) = 2156$

$$10x + 12(187-x) = 2156$$
$$10x + 2244 - 12x = 2156$$
$$-2x + 2244 = 2156$$
$$-2244 \quad -2244$$
$$-2x = -88$$
$$x = 44$$
$$187 - x = 143$$

∴ 44 Seniors and 143 adults go to theatre.

4.

	Almonds	M&M's	Total
$/kg	13	7	8
No. of kg's	x	$9-x$	9
Total $	$13x + 7(9-x) = 72$

$$13x + 63 - 7x = 72$$
$$6x + 63 = 72$$
$$-63 \quad -63$$
$$6x = 9$$
$$x = 1.5$$
$$9 - x = 7.5$$

∴ mixture is 1.5 kg almonds, 7.5 kg M&M's.

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5. Let $x, x+1, x+2$ represent the numbers.

$$x + (x+1) + (x+2) = -219$$
$$3x + 3 = -219$$
$$-3 \qquad -3$$
$$3x = -222$$
$$x = -74$$
$$x+1 = -73$$
$$x+2 = -72$$

∴ the numbers are -74, -73, -72

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6. Let $a, 3a$ represent Andrew & Maeve's ages (years)

$a+5, 3a+5$ in 5 years

$$(a+5) + (3a+5) = 38$$
$$4a + 10 = 38$$
$$-10 \quad -10$$
$$4a = 28$$
$$a = 7$$
$$3a = 21$$

∴ Andrew is 7 yrs old, Maeve is 21 yrs old.

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7. Let $w, w+3$ represent the width, length of the rectangle (cm)

Since Perimeter equals $2l + 2w$, half the perimeter equals $l + w$.

$$w + (w+3) = 41$$
$$2w + 3 = 41$$
$$-3 \quad -3$$
$$2w = 38$$
$$w = 19$$

∴ the width is 19cm, length is 22 cm