Translate to a system of equations: The sum of two numbers is negative fourteen. One number is four less thatn the other. Find the numbers.

$$x + y = -14 \qquad\qquad y = \boxed{x-4}$$
$$x + x - 4 = -14 \qquad\qquad = -5 - 4$$
$$2x - 4 = -14 \qquad\qquad y = -9$$
$$2x = -10$$
$$x = -5$$

Translate to a system of equations: A married couple together earns $110,000. The wife earns $16,000 less than twice what her hsband earns. What does the husband earn?

Wife $68,000

husband = $42,000

$$x = wife \qquad x + y = 110,000 \qquad x = \boxed{2y - 16000}$$
$$y = husband$$
$$2y - 16,000 + y = 110,000$$
$$x = 110,000 - 42,000 \qquad 3y - 16,000 = 110,000$$
$$x = \$68,000 \qquad\qquad 3y = 126,000$$
$$y = \$42,000$$

$x =$ Senior employee

$y =$ New employee

Translate to a system of equations: A senior emploee makes $5 less than twice what a new employee makes per hour. Together they make $43 per hour. How much does each employee make per hour?

$$x + y = 43 \qquad\qquad x = 2y - 5$$
$$2y - 5 + y = 43 \qquad\qquad = 2(16) - 5$$
$$3y - 5 = 43 \qquad\qquad 32 - 5$$
$$3y = 48 \qquad\qquad 27$$
$$y = 16 \qquad\qquad Senior \ \$27/hour$$
$$New \ \$16/hour$$

Translate to a system of equations and then solve: Devon is 26 years older thatn his son Cooper. The sum of their ages is 50. Find their ages.

D - Devon age

C - Cooper Age

$D + C = 50$

$C + 26 + C = 50$

$2C + 26 = 50$

$2C = 24$

$C = 12$

$D = C + 26$

or

$C = D - 26$

Devon 38

Translate to a system of equations and then solve: When Jenna spent 10 minutes on the ellipical trainer and then did circuit training for 20 minutes, her fitness app says she burned 278 calories. When she spent 20 minutes on the ellipical trainer and 30 minutes circuit training she burned 473 caloreis. How many calories does she burn for each minute on the ellpical trainer? How many calories does she burn for each minute of circuit training?

X = min on ellipical

Y = min circuit training

$2(10x + 20y = 278)$

$20x + 30y = 473$

$20x + 40y = 556$

(-) $20x + 30y = 473$

$10y = 83$

$y = 8.3$

Translate to a system of equations and then solve: Mark went to the gym and did 40 minutes of Bikram hot yoga and 10 minutes of jumping jacks. He burned 510 calories. The next time he went to the gym, he did 30 minutes of Bikram hot yoga and 20 minutes of jumping jacks burning 470 calories. How many calories were burned of each minute of yoga? How many claories were burned for each minute of jumping jacks?