Some of these we did in class, others we did not. Try them out!

1. Before Oscar started ukulele lessons, he could already play 4 songs. Since he started, he has been able to learn 2 songs a week. How many songs will he know after one month of lessons? Write a linear equation to describe this scenario.
2. It costs $75 to hire a plumber, then $25 for every hour of work he has to do. Your toilet blew up because the toddler got ahold of your brother's fireworks. If it takes 5 hours for the plumber to do his thing, how much money are you paying at the end of a long night? Write a linear equation to describe this scenario.
3. You are very precise and you know that it takes you 8 cm of tape for every present you wrap. You know your sister used up ¾ of the tape already. A new roll of tape has 600 cm of tape on it. You've already wrapped 3 presents. How many presents can you wrap with the remaining tape? Write a linear equation to describe this scenario.
4. As many do in the month of January, Talon paid $50 to get a membership at a gym. He has to pay $25 a month to maintain his membership. He has $270 budgeted for health stuff this year. How many months can he go to this gym? Write a linear equation to describe this scenario.
5. Sidney is into vegetables so she decides this year she wants to grow lettuce in her garden. She wants to eat it all summer long, so she's going to plant 4 plants a week. She already planted 2 lettuce plants before she made this plan. If there are 12 weeks in the summer, how many plants will she end up growing? Write a linear equation to describe this scenario.
6. On six book shelves there are 72 books per shelf. How many books are there altogether? If 1/3 of these are non-fiction, how many fictional books are there?
7. A train arrives at the station with 150 passengers on board. 2/5 of the passengers get off the train in Seattle, and then 35 passengers board the train. How many passengers are on the train when it leaves the station?
8. A pan of brownies was left out on the counter and 1/4 of the brownies had already been eaten. Then John came along and ate 2/3 of the brownies that were left. How much of the whole pan of brownies did John eat?
9. 30 people watched the soccer game last night. Tickets cost $2.75 each. Half of these fans bought a program at $1.50 each. How much money was collected altogether?

Before Oscar started ukulele lessons, he could already play 4 songs. Since he started, he has been able to learn 2 songs a week. How many songs will he know after one month of lessons? Write a linear equation to describe this scenario.

4 songs he already knows

2 songs per week

#songs after x weeks $= 4 + 2 \cdot x$

or $S = 2x + 4$

weeks

$S(4) = 2 \cdot 4 + 4$
$= 12 \; songs$

It costs $75 to hire a plumber, then $25 for every hour of work he has to do. Your toilet blew up because the toddler got ahold of your brother's fireworks. If it takes 5 hours for the plumber to do his thing, how much money are you paying at the end of a long night? Write a linear equation to describe this scenario.

$75 initial cost,
$25 per hour

$$\text{Total cost} = 75 + 25x$$

$$\text{or} \quad \boxed{c = 25x + 75}$$

$$c(5) = 25 \cdot 5 + 75$$
$$= \boxed{200 \text{ dollars}}$$

As many do in the month of January, Talon paid $50 to get a membership at a gym. He has to pay $25 a month to maintain his membership. He has $270 budgeted for health stuff this year. How many months can he go to this gym? Write a linear equation to describe this scenario.

$50 — initial cost

$25 per month

$$\text{Total} = 50 + 25x$$
Cost $

or $\boxed{C = 25x + 50}$

$$\$270 = 25x + 50$$
$$-50 \qquad\qquad -50$$
$$220 = 25x$$
$$8.8 = x$$

$\boxed{8 \text{ months}}$ w/ $20 left for protein powder :)

You are very precise and you know that it takes you 8 cm of tape for every present you wrap. You know your sister used up ¾ of the tape already. A new roll of tape has 600 cm of tape on it. You've already wrapped 3 presents. How many presents can you wrap with the remaining tape? Write a linear equation to describe this scenario.

8 cm per present

3 presents already wrapped → 3(8)

= 24 cm used

length of tape $= 24 + 8p$

$$\boxed{L = 8p + 24}$$

$600\left(\dfrac{3}{4}\right) = 150$ cm used already.

$600 - 450 = 150$ cm tape available

$$150 = 8p + 24$$
$$-24 \qquad\qquad -24$$
$$\dfrac{126}{8} = \dfrac{8p}{8}$$
$$15.75 = p$$

15 presents w/ 6 cm tape left

Sidney is into vegetables so she decides this year she wants to grow lettuce in her garden. She wants to eat it all summer long, so she's going to plant 4 plants a week. She already planted 2 lettuce plants before she made this plan. If there are 12 weeks in the summer, how many plants will she end up growing? Write a linear equation to describe this scenario.

4 plants per week

2 already planted.

Total = 2 + 4x
Plants

$$p = 4x + 2$$

$$p = 4 \cdot 12 + 2$$
$$= 50 \text{ plants}$$

On six book shelves there are 72 books per shelf. How many books are there altogether? If 1/3 of these are non-fiction, how many fictional books are there?

6 shelves, 72 books per shelf

$72 \frac{books}{shelf} * 6 \text{ shelves} = \boxed{432 \ books}$

$432 \left(\frac{1}{3}\right) = 144 \text{ nonfiction}$

$432 - 144 = \boxed{288 \text{ fiction}}$

A train arrives at the station with 150 passengers on board. 2/5 of the passengers get off the train in Seattle, and then 35 passengers board the train. How many passengers are on the train when it leaves the station?

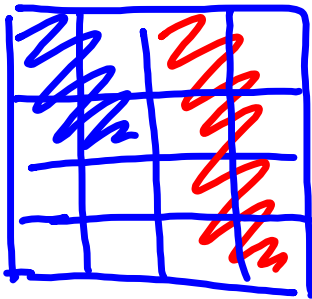$$(150 \text{ passengers}) \cdot \frac{2}{5} = 60 \text{ got off}$$

$$150 - 60 = 90 \text{ stayed on}$$

$$90 + 35 = \boxed{125 \text{ passengers on train when it leaves station}}$$

got on

A pan of brownies was left out on the counter and 1/4 of the brownies had already been eaten. Then John came along and ate 2/3 of the brownies that were left. How much of the whole pan of brownies did John eat?

$$1\left(\frac{1}{4}\right) = \frac{1}{4} \text{ eaten}$$

$$4 \cdot \quad 1 - \frac{1}{4} = \frac{4}{4} - \frac{1}{4} = \frac{3}{4} \text{ left}$$

$$4 \cdot 1$$

$$\frac{3}{4}\left(\frac{2}{3}\right) = \frac{6}{12} = \frac{1}{2}$$

John ate ½ of the brownies

30 people watched the soccer game last night. Tickets cost $2.75 each. Half of these fans bought a program at $1.50 each. How much money was collected altogether?

$$(30 \text{ people}) \cdot \frac{1}{2} = 15 \text{ people}$$

30 got a ticket

15 got a program

$$30(2.75) + 15(1.50)$$

$$= \boxed{\$105 \text{ collected}}$$