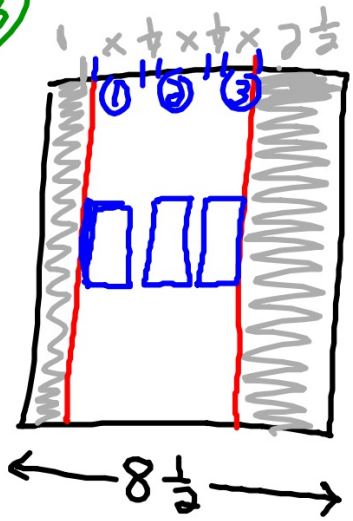
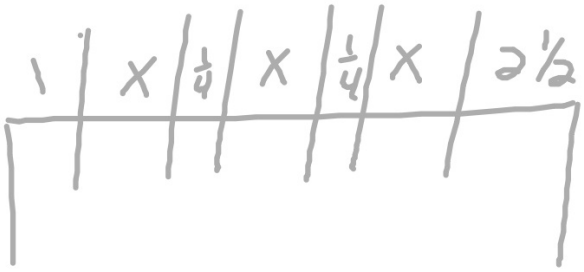
-3





$8.5 = 1 + x + .25 + x + .25 + x + 2.5$

$8.5 = 3x + 4$

$-4 \quad -4$

$4.5 = 3x$

$\frac{4.5}{3} = \frac{3x}{3}$

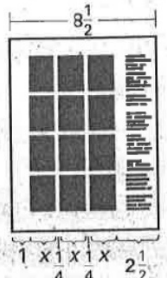
$1.5 = x$

1.5 inches

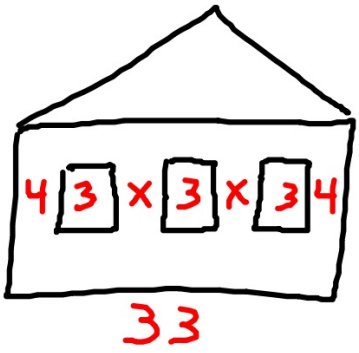
Yearbook Layout **In Exercises 1–3, use the following information.**

A page of a school yearbook is $8\frac{1}{2}$ inches by 11 inches. The left and right margins are 1 inch and $2\frac{1}{2}$ inches, respectively. The space between pictures is $\frac{1}{4}$ inch. How wide can each picture be to fit 3 across the width of the page?

1. Write a verbal model for this problem.
2. Write an equation for the model.
3. Solve the equation and answer the question.



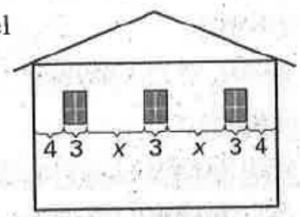
4-6



House Design **In Exercises 4–6, use the following information.**

You are designing a house with three 3-feet-wide windows on the back of the house. There are 4 feet between each end window and an edge of the house. The width of the house is 33 feet. How far apart should the windows be?

4. Write a verbal model for this problem.
5. Write an equation for the model.
6. Solve the equation and answer the question.



$4+3+x+3+x+3+4=33$

$2x+17=33$

$-17 \quad -17$

$\frac{2x}{2}=\frac{16}{2}$

$x=8$

8ft.

Saving and Spending **In Exercises 7–10, use the following information.**

Currently, you have \$60 and your sister has \$135. You decide to save \$5 of your allowance each week, while your sister decides to spend her whole allowance plus \$10 each week. How long will it be before you have as much money as your sister?

7. Write a verbal model for this problem.
8. Write an equation for the model.
9. Solve the equation and answer the question.
10. Copy and complete the table below using the information from the original problem statement.

Week	*0*	*1*	*2*	*3*	*4*	*5*
Your money	60	65	70	75	80	85
Sister's money	135	125	115	105	95	85

Your \$ = 60 + 5x

Sister \$ = 135 − 10x

$60 + 5x = 135 - 10x$

$+10x \qquad +10x$

$60 + 15x = 135$

$-60 \qquad -60$

$\frac{15x}{15} = \frac{75}{15}$

$x = 5$

Temperature Change **In Exercises 11–14, use the following information.**

In Detroit the temperature is 69° F and is rising at a rate of 2° F per hour. In Atlanta the temperature is 84° F and is falling at a rate of 3° F per hour. If the temperatures continue to change at the same rates, how long will it be before the temperatures are the same?

11. Write a verbal model for this problem.

12. Write an equation for the model.

13. Solve the equation and answer the question.

14. Copy and complete the table below using the information from the original problem statement.

Hour	*0*	*1*	*2*	*3*	*4*	*5*
Detroit temperature	69	71	73	75	77	79
Atlanta temperature	84	81	78	75	72	69

$D = 69 + 2x$

$A = 84 - 3x$

$69 + 2x = 84 - 3x$

$+3x \qquad +3x$

$69 + 5x = 84$

$-69 \qquad -69$

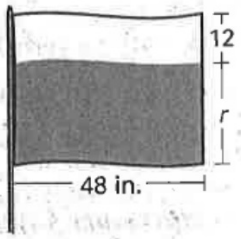
$\frac{5x}{5} = \frac{15}{5}$

$x = 3$

Sewing Flags **In Exercises 1–3, use the following information.**

You are making flags for the school color guard. Each flag has a red stripe and a 12-inch-wide white stripe. The width of each flag is $\frac{3}{4}$ its length. The length is 48 inches. How wide is the red stripe?

1. Write a verbal model for this problem.
2. Write an equation for the model.
3. Solve the equation and answer the question.



Cassette Storage **In Exercises 4–6, use the following information.**

You have a box that is a good size for your tape collection. Two rows of tapes will fit in the box. The box is 10 inches wide. Each tape is $\frac{5}{8}$ inches wide. How many tapes will fit in the box?

4. Write a verbal model for this problem.

5. Write an equation for the model.

6. Solve the equation and answer the question.