

Writing Equations in $Ax + By = C$ to describe real situations:

Write an equation in $Ax + By = C$ for each situation:

1. A company will charge $\$3$ to ship a medium size box to China, and $\$4$ to ship a large box to China. Write an equation to represent the amount of boxes the company could ship if their shipping budget is 132 dollars. *How many medium and large boxes are needed?*

Define your variables:
 Let $M =$ medium boxes
 Let $L =$ large boxes

Equation: $3M + 4L = 132$

2. Jenny is making a scrapbook of her senior year. She needs to get some pictures printed. She finds an online company that will print and send her 3x5 pictures for $20c$ each and 4x6 pictures for $30c$ each. If she is only allowed to order $\$10.00$ worth of pictures, write an equation to represent the amount of each size of picture she could order. *How many 3x5 and 4x6 pictures can she order?*

Define your variables:
 Let $x =$ 3x5 pictures
 Let $y =$ 4x6 pictures

Equation: $.20x + .30y = 10.00$

3. Jeff is packing a care box to send to his brother who is a soldier. He wants to send him his favorite cookies which weigh 10 oz each and winter socks which weigh 22 oz per pair. He has been told that his box can weigh 8 pounds. Write an equation to represent the number of boxes of cookies and pairs of socks Jeff could pack for his brother. (Careful! The units must match, $1\text{ lb} = 16\text{ oz}$)

Define your variables:
 Let $C =$ boxes of cookies
 Let $S =$ pairs of socks

Equation: $10C + 22S = 128$
convert lbs to ounces
 $8\text{ lb} \times \frac{16\text{ oz}}{1\text{ lb}} = 128$
← same units

4. Julie is trying to lose weight. She decides to try to burn calories by walking or jogging. She finds out that walking burns an average of 5 calories per minute, and jogging burns an average of 7 calories per minute. Write an equation to show the amount of walking or jogging Julie would need to do to burn an extra 300 calories.

Define your variables:
 Let $w =$ minutes spent walking
 Let $j =$ minutes spent jogging

Equation: $5w + 7j = 300$
or How many minutes of walking or jogging must she do?