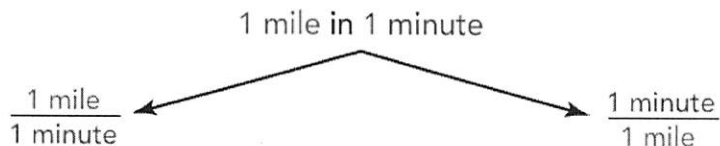


# Lesson 11-5: Choosing the Appropriate Rate

## Intro

Given any two measurements, you can write two different rates to compare them.



## Example

The recommended rate for a scuba diver to come to the surface is 30 feet per minute. What is the rate in seconds per foot?

## Got It?

In some states, you can return bottles for recycling and receive 5¢ per bottle. What is the rate in bottles per dollar?

## Example

On your friend's current phone plan, text messages cost 10¢ per message. Which of the following plans offer a better deal than the current plan?

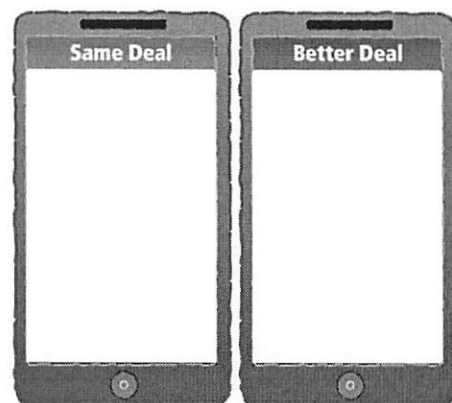
**Plan A**  
\$2 for  
20 messages

**Plan B**  
10 messages  
per dollar

**Plan C**  
\$5 for 100  
messages

**Plan D**  
1 message  
for 5¢

**Plan E**  
70 messages  
for \$7



## Got It?

Which song download site offers the best deal?

Site A: 3 songs for \$4

Site B: \$3 for 4 songs

Site C: 5 songs for \$5

Site D: 90¢ per song

## Example

You get an offer to baby-sit for \$6.25 per hour.

a. How much will you earn if you baby-sit for 5 hours?

b. How many hours will you need to baby-sit at this rate to earn \$100?

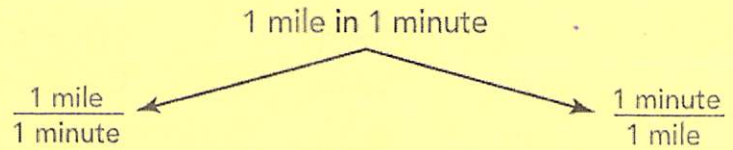
## Challenge:

An animal moves at a rate of 10 inches per minute. What is the rate in seconds per foot?

# Lesson 11-5: Choosing the Appropriate Rate

## Intro

Given any two measurements, you can write two different rates to compare them.



## Example

The recommended rate for a scuba diver to come to the surface is 30 feet per minute. What is the rate in seconds per foot?

$$\frac{30 \text{ ft}}{1 \text{ minute}} = \frac{30 \text{ ft}}{60 \text{ seconds}}$$

$$\frac{60 \text{ seconds}}{30 \text{ ft}} = \frac{2 \text{ sec}}{1 \text{ ft}}$$

(Note:  $\div 30$  is written above the arrow from 60 to 2, and  $\div 30$  is written below the arrow from 30 to 1.)

2 sec per ft

## Got It?

In some states, you can return bottles for recycling and receive 5¢ per bottle. What is the rate in bottles per dollar?

$$\frac{\$0.05}{1 \text{ bottle}}$$

$$\frac{1 \text{ bottle}}{\$0.05} = \frac{20 \text{ bottles}}{\$1}$$

(Note:  $\times 20$  is written above the arrow from 1 to 20, and  $\times 20$  is written below the arrow from 0.05 to 1.)

20 bottles per dollar

## Example

On your friend's current phone plan, text messages cost 10¢ per message. Which of the following plans offer a better deal than the current plan?

**Plan A**  
\$2 for 20 messages

10 messages per \$1

**Plan B**  
10 messages per dollar

10 messages per \$1

**Plan C**  
\$5 for 100 messages

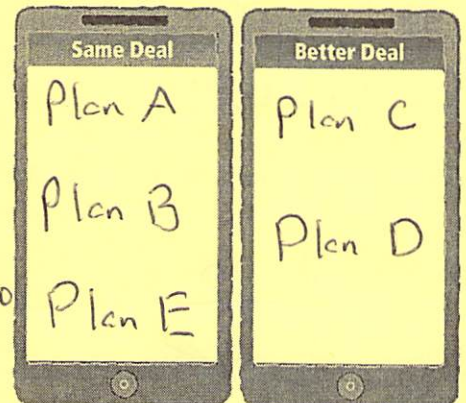
10 messages per \$0.50

**Plan D**  
1 message for 5¢

10 messages per \$0.50

**Plan E**  
70 messages for \$7

10 messages per \$1



## Got It?

Which song download site offers the best deal?

|                         |        |     |        |
|-------------------------|--------|-----|--------|
| Site A: 3 songs for \$4 | 1 song | for | \$1.33 |
| Site B: \$3 for 4 songs | 1 song | for | \$0.75 |
| Site C: 5 songs for \$5 | 1 song | for | \$1.00 |
| Site D: 90¢ per song    | 1 song | for | \$0.90 |

## Example

You get an offer to baby-sit for \$6.25 per hour.

a. How much will you earn if you baby-sit for 5 hours?

$$\begin{array}{r} \$6.25 \\ \hline 1 \text{ hr} \end{array} \xrightarrow{\times 5} \begin{array}{r} \$31.25 \\ \hline 5 \text{ hrs} \end{array}$$

\$31.25 for  
5 hours

b. How many hours will you need to baby-sit at this rate to earn \$100?

$$\frac{\$6.25}{1 \text{ hr}} = \frac{\$100}{x \text{ hrs}}$$

$$\begin{array}{l} 6.25 \times \uparrow 100 \\ \div 6.25 \quad \div 6.25 \\ \hline x = 16 \text{ hrs} \end{array}$$

## Challenge:

An animal moves at a rate of 10 inches per minute. What is the rate in seconds per foot?

$$\frac{10 \cancel{\text{ in}}}{1 \cancel{\text{ min}}} \cdot \frac{1 \text{ ft}}{12 \cancel{\text{ in}}} \cdot \frac{1 \cancel{\text{ min}}}{60 \text{ sec}} = \frac{10 \text{ ft}}{720 \text{ sec}}$$

$$\frac{720 \text{ sec}}{10 \text{ ft}} = 72 \text{ sec per ft.}$$