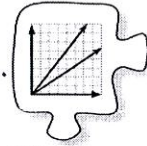


7.1.1 & 7.1.2 How can I compare the rate?

Comparing Rates with Tables and Graphs



Whenever you are trying to describe how quickly or slowly something occurs, you are describing a **rate**. To describe a rate, you need to provide two pieces of information. If two people each walk 10 miles, for example, it may seem like they are doing the same thing. But if you find out that one person walked the whole distance in 3 hours while the other person took 8 hours, then it becomes clear that they were traveling at **different speeds**.

MAKING MONEY: The sixth graders at Shasta Middle School are planning a class trip to Washington, D.C. They need to raise enough money for all 140 sixth graders to travel, so they have a lot of work to do! The class officers have collected the data above about different kinds of fundraisers. They want your help with choosing a fundraising activity.

Type of Fundraiser	Time	Expected Profit
Cookie sales	3 weeks	\$500
Car washes	4 weeks	\$700
Recycling	$\frac{3}{5}$ week	\$85
Yardwork	2 weeks	\$320

7-1. How much will each fundraiser earn in 6 weeks?

● - 12 weeks

7-2 Approximately how long will it take each fundraiser to earn \$5,000?

● ≈ 5,000

7-3 Find the **Unit Rate** for each type of fundraiser. In other words, approximately what will each fundraiser earn in **one week**?

● - 1 week

7-4 a) Compare each fundraiser on a coordinate plane. Use colors and/or labels to distinguish the different types of fundraisers.

b) On your graph, how can you tell which fundraiser earns money the fastest? The slowest?

7-5 **Your Team Poster Task:** The class officers at Shasta Middle School need to raise \$500 per 6th grader for the trip. Come up with a fundraising plan for the students. You need to suggest what type(s) of fundraisers they should use and how long it will take them. Be sure to justify your recommendation with your calculations.

Your Poster Must Have:

1. A written suggestion of which fundraiser(s) they should use and how long each will last.
2. A break-down of expected profit (for each fundraiser and the total)
3. A coordinate plane graph (that shows all 4 fundraisers) with clear labels.
4. Any calculations or tables that you feel help to support your argument



A **unit rate** is a rate that compares the change in one quantity to a 1-unit change in another quantity. For example, *miles per hour* is a unit rate, because it compares the change in miles to a change of 1 hour. If an airplane flies 3000 miles in 5 hours and uses 6000 gallons of fuel, you can compute several unit rates.

It uses $\frac{6000 \text{ gallons}}{5 \text{ hours}} = 1200 \frac{\text{gallons}}{\text{hour}}$ or $\frac{6000 \text{ gallons}}{3000 \text{ miles}} = 2 \frac{\text{gallons}}{\text{mile}}$ and it travels at $\frac{3000 \text{ miles}}{5 \text{ hours}} = 600 \frac{\text{miles}}{\text{hour}}$.

compare rates with tables using any method

7-1
7-2
7-3
Cookie
time
3 WKS
6 WKS
30 WKS
1 WK.

$3 \sqrt{15}$
 $3 \sqrt{3}$
 $1 \sqrt{2}$

7-4
7-5

yardwork
me Profit
WKS. \$320
WKS. \$640
WKS. \$960
WKS. \$3200
WKS. \$4,160
WKS. \$4,800
WKS. \$5,120
WKS. \$160

$140 \overline{) 320}$
 $2 \downarrow$
 $12 \downarrow$
 $12 \downarrow$
 00

red for

res two

amount quantity

tables using any method

7-1
7-2
7-3

COOL

time
3 WKS.
6 WKS.
30 WKS.
1 WK.

\$1,000
\$5,000
\$1160.160

$$\begin{array}{r} 1160 \\ 3 \overline{) 500} \\ \underline{-30} \\ 20 \\ \underline{-18} \\ 20 \\ \underline{-18} \\ 2 \end{array}$$

4 WKS.	\$ 700
2 WKS.	\$ 350
6 WKS.	\$1,050
12 WKS.	\$2,100
24 WKS.	\$4,200
26 WKS.	\$4,550
28 WKS.	\$4,900
29 WKS.	\$5,075
1 WK.	\$ 175

$$\begin{array}{r} 175 \\ 2 \overline{) 350} \\ \underline{-20} \\ 15 \\ \underline{-14} \\ 10 \end{array}$$

time	Profit
3/5 WK.	\$ 85
30/5 = 6 WKS.	\$ 850
12 WK.	\$1700
24 WK.	\$3400
36 WKS.	\$5,100
1 WK.	\$141.160

$$\begin{array}{r} 141.160 \\ 6 \overline{) 850.0} \\ \underline{-60} \\ 25 \\ \underline{-24} \\ 10 \\ \underline{-6} \\ 40 \\ \underline{-36} \\ 4 \end{array}$$

time	Profit
2 WKS.	\$320
4 WKS.	\$640
6 WKS.	\$960
20 WKS.	\$3200
26 WKS.	\$4,160
30 WKS.	\$4,800
32 WKS.	\$5,120
1 WK.	\$160

$$\begin{array}{r} 160 \\ 2 \overline{) 320} \\ \underline{-20} \\ 12 \\ \underline{-12} \\ 00 \end{array}$$

7-4 Coordinate Plane (Back of Flap)

7-5 Team Poster turned in to Ms. Trevino

$$200 \begin{array}{|c|c|} \hline 100 & 40 \\ \hline 20,000 & 8,000 \\ \hline \end{array} = \$28,000 \text{ required for trip}$$

Vocabulary Rates and Unit Rates



METHODS AND MEANINGS

MATH NOTES

In Lesson 7.1.1, you learned that a **rate** is a ratio that compares two different quantities.

$$\text{rate} = \frac{\text{one quantity}}{\text{another quantity}}$$

A **unit rate** is a rate that compares the change in one quantity to a 1-unit change in another quantity. For example, *miles per hour* is a unit rate, because it compares the change in miles to a change of 1 hour. If an airplane flies 3000 miles in 5 hours and uses 6000 gallons of fuel, you can compute several unit rates.

It uses $\frac{6000 \text{ gallons}}{5 \text{ hours}} = 1200 \frac{\text{gallons}}{\text{hour}}$ or $\frac{6000 \text{ gallons}}{3000 \text{ miles}} = 2 \frac{\text{gallons}}{\text{mile}}$ and it travels at $\frac{3000 \text{ miles}}{5 \text{ hours}} = 600 \frac{\text{miles}}{\text{hour}}$.