

# 8<sup>th</sup> GRADE MAIN RANGEFINDER

## 4

It is important that you show or explain how you solved the problems on this assessment.  
If you use a calculator, show how you set up the math.

1. You are going to the movies. The price of the ticket is \$7.50, which includes sales tax.

**Concessions (sales tax included)**

Popcorn	\$5.25 per bucket
Pop	\$2.50 each
Candy	\$2.25 each

- a. What is the cost for six people to go to the movie? *Show or explain how you found your answer.*

$$\begin{array}{r} \$7.50 \\ \times 6 \\ \hline \$45.00 \end{array}$$

**Appropriate Process  
Accurately Completed**

- b. What is the total cost for six people to go to the movie **and** for each to have one bucket of popcorn, one pop, and one candy? *Show or explain how you found your answer.*

$$\begin{array}{r} \$7.50 \\ 5.25 \\ 2.50 \\ + 2.25 \\ \hline \$17.50 \end{array}$$

$$\begin{array}{r} \$17.50 \\ \times 6 \\ \hline \$105.00 \end{array}$$

**Minimal  
Or  
Non-Existent Errors**

- c. The price of the six tickets is what fraction of the total cost for the six people, including concessions? *Show or explain how you found your answer.*

$$\frac{\$45.00}{\$105.00} = \frac{45}{105} \div \frac{5}{5} = \frac{9}{25}$$

**Advanced Application of  
Basic Skills**

**Minimal  
Or  
Non-Existent Errors**

- d. If you go to a **matinee** movie, you receive a 15% discount on the price of a ticket. What is the price of **one matinee** ticket? *Show or explain how you found your answer.*

$$100 \overline{) 7.500}$$

$$\begin{array}{r} 3 \cdot 2 \\ .075 \\ \times 18 \\ \hline 375 \\ 750 \\ \hline 1.125 \end{array}$$

$$\begin{array}{r} 7.500 \\ - 1.125 \\ \hline 6.375 \end{array}$$

**Advanced Use of  
Symbols**

Read problems 2, 3, 4, and 5 on this and the next two pages.  
Select three problems to answer. Answer ALL of the parts of the three problems you select to answer.  
Cross out the one problem that you do not choose to answer.

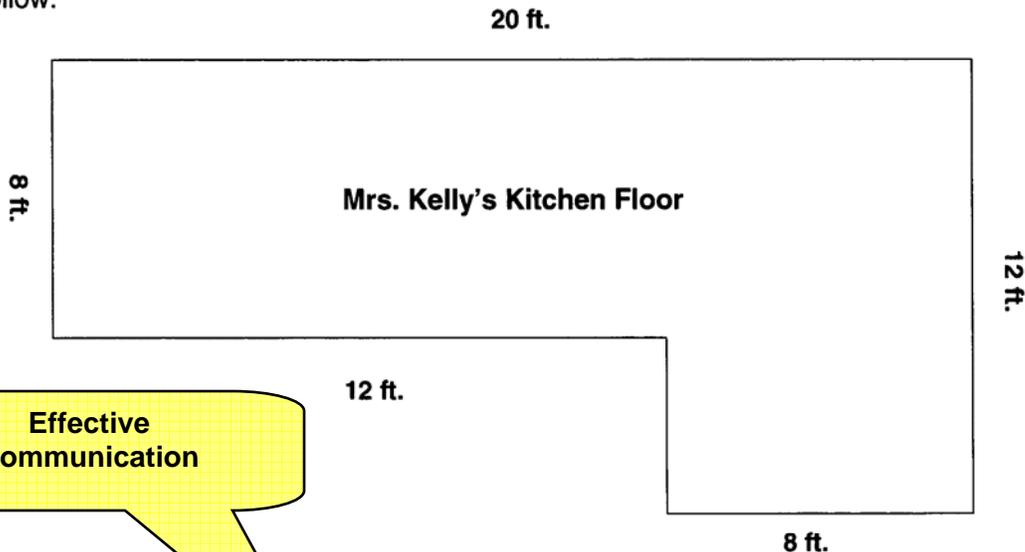
2. Data was collected from 7th grade students who completed the Idaho Standards Achievement Test (ISAT) in the fall and spring. The numbers below represent points gained.

**Points Gained Per Student**

1, 0, 1, 9, 6, 7, 2, 5, 9, 7, 6, 6, 4, 8, 2, 8, 7, 6

- a. Graph or plot the data in the space provided. Include appropriate labels.
- b. How many students gained more than six points? *Show or explain how you found your answer.*
- c. Find the mean, median, mode, and range for the given data. *Show or explain how you found your answers.*
- d. Using the information above, which is the best indicator (mean, median, or mode) of the students' performances? **Why?** *(Show or explain how you found your answer.)*

3. Mrs. Kelly wants to tile her kitchen floor. Use the diagram below to answer the questions that follow.



**Effective Communication**

- a. What is the total area that needs to be tiled? Show or explain how you found your answer.

$$\begin{array}{r} 12 \\ \times 8 \\ \hline 96 \end{array} \quad \begin{array}{r} 12 \\ \times 8 \\ \hline 96 \end{array} \quad \begin{array}{r} 96 \\ + 96 \\ \hline 192 \end{array} \quad 192\text{ft}^2$$

- b. If the tiles are 6-inch squares, how many tiles will Mrs. Kelly need to purchase? Show or explain how you found your answer.

$$\begin{array}{r} 192 \\ \times 4 \\ \hline 768 \end{array}$$

768 tiles

**Advanced Understanding of Situation**

- c. Each box contains 35 tiles. How many boxes will Mrs. Kelly need to purchase? Show or explain how you found your answer.

$$\begin{array}{r} 21 \\ 35 \overline{) 768} \\ \underline{70} \phantom{0} \\ 68 \\ \underline{70} \\ 33 \end{array}$$

22 boxes

- d. If each box costs \$52.50, what will be the total cost of the tiles? What would be the cost including a 5% sales tax? Show or explain how you found your answers.

\$1097.25

$$\begin{array}{r} 52.50 \\ \times 20 \\ \hline 1050.00 \\ + 1050.00 \\ \hline 1155.00 \end{array}$$

**Minimal Errors**

**Adaptable Process**

$$1155.00 \div 100 = 11.55$$

$$\begin{array}{r} 11.55 \\ \times 5 \\ \hline 57.75 \end{array}$$

4. Jamie's cell phone company, XYZ Cellular, charges \$20.00 per month plus 5 cents for each minute of calling time.

a. Use  $m$  to represent the number of minutes. Write an expression for Jamie's total monthly cell phone charge. *Show or explain how you found your answer.*

$m = \text{minute}$   
 $p = \text{price}$   
 $m \times .05 + 20 = p$

**Appropriate Processes Accurately Completed**

b. How much will Jamie have to pay in October if she talks for one hour and 50 minutes? *Show or explain how you found your answer.*

$$\begin{array}{r} 60 \text{ mins} \\ + 50 \text{ mins} \\ \hline 110 \text{ mins} \end{array} \times \frac{110}{.05} = 5.50$$

$$\begin{array}{r} \$5.50 \\ + 20.00 \\ \hline \$25.50 \end{array}$$

c. Jamie is thinking about changing to Lakeside Cellular, which charges 20 cents per minute of calling time and no monthly fee. How much would her October charge have been if she had been using this new company? *Show or explain how you found your answer.*

$$\begin{array}{r} 110 \\ \times .20 \\ \hline 22.00 \end{array}$$

d. For October, which of these two companies would save her the most money? How much money would she save? *Show or explain how you found your answer.*

$$\begin{array}{r} \$25.50 \\ - 22.00 \\ \hline \$3.50 \end{array}$$

Lakeside Cellular  
 \$3.50 cheaper

**Effective Problem-Solving Strategies**

5. Each student in Mrs. Smith's class received a bag of candy. They counted the candy in their bags. Joe had 50 candies, Sally had 62, David had 55, Heather had 57, and Tia had 60.

a. Joe had the following candies in his bag: 7 brown, 5 orange, 6 yellow, 10 red, 8 green, and 14 blue. What is the probability that Joe will pick a red M&M out of his bag? *Show or explain how you found your answer.*

$$\begin{array}{r} 7 \\ 5 \\ 6 \\ 10 \\ 8 \\ 14 \\ \hline 50 \end{array}$$

$$10:50 = 1:5$$

b. What is the probability that the first candy Joe picks out of his bag will be yellow or green? *Show or explain how you found your answer.*

$$\begin{array}{r} 6 \\ + 8 \\ \hline 14 \end{array}$$

$$14:50 = 7:25$$

c. If Joe eats one red candy, what is the probability that the next candy he picks out of his bag will be brown? *Show or explain how you found your answer.*

$$7:49 = 1:7$$

$$\begin{array}{r} 7 \\ 5 \\ 6 \\ 3 \\ 9 \\ + 14 \\ \hline 49 \end{array}$$

**Advanced Understanding of Situation**