

Name: Key

Concepts in Math

Final Exam Review

Mrs. Dunn

Inductive Reasoning

What is inductive reasoning? *arriving at a general conclusion based on observations of specific examples*

Using inductive reasoning find the next item of the pattern.

1. 19 24 29 34 39 44
 $\underbrace{\quad}_5 \quad \underbrace{\quad}_5$

2. 2 8 32 128 512 2048
 $\times 4 \quad \times 4$

3. 2 5 9 14 20 27 35
 $\underbrace{\quad}_3 \quad \underbrace{\quad}_4 \quad \underbrace{\quad}_5 \quad \underbrace{\quad}_6 \quad \underbrace{\quad}_7 \quad \underbrace{\quad}_8$

Rounding and Estimating

Rounding Rules

- Identify the place value you are rounding to.
- Look at the digit to the right.
 - If the digit to the right is 5 or greater, add 1 to the digit to be rounded. Replace all digits to the right with zeros. For decimals, drop all numbers to the right.
 - If the digit to the right is less than 5, do not change the digit to be rounded. Replace all digits to the right with zeros. For decimals, drop all numbers to the right.

4. Given the number 6,325,749 round to the nearest

a. ten

6,325,750

b. hundred

6,325,700

c. ten thousand

6,330,000

d. hundred thousand

6,300,000

e. million

6,000,000

5. Given the number 6.837594 round to the nearest

a. tenths

6.8

b. thousandths

6.838

c. ten-thousandths

6.8376

d. ones

7

Estimating by Rounding

To estimate by rounding, first round to a convenient digit place, then perform the indicated operation.

6. Estimate the following answers (try not to use a calculator). Write the estimated values before performing the operation.

a. $7.92 + 3.06 + 24.36$

$$8 + 3 + 24 = 35$$

b. 78.92×6.5

$$80 \times 7 = 560$$

c. Find the total cost of the following:

\$4.23, \$7.79, \$28.97, \$4.06, \$13.45, \$0.74

$$4 + 8 + 29 + 4 + 13 + 1 = 59$$

d. You buy 14 cases of soda for \$5.79 per case. Find the total cost.

$$\begin{array}{r} 14 \\ \times 6 \\ \hline \$84 \end{array}$$

7. If a person who works 40 hours per week earns \$38,950 per year, estimate that person's hourly wage.

$$\begin{array}{r} 40 \quad 40,000 \\ \times 50 \\ \hline 2000 \end{array}$$

$$\frac{40,000}{2,000} = \$20/\text{hr.}$$

Problem Solving

Four Steps in Problem Solving

- A. *Understand the problem.* Read the problem several times. Write down information that is given and determine exactly what you are required to find.
- B. *Devise a plan.* This may include one or more of the following suggested problem-solving strategies:
- Use inductive reasoning to look for a pattern.
 - Make a systematic list or a table
 - Use estimation to make an educated guess at the solution.
 - Try making a sketch or diagram to illustrate the problem
 - Relate the problem to a similar problem that you have seen before.
 - Use the given information to eliminate possibilities
 - Use common sense
- C. *Carry out the plan and solve the problem*
- D. *Look back and check the answer.* Does the answer make sense? Did you answer the question?

Identify the unnecessary piece information. Then solve the problem.

8. You have \$250 to spend and you need to purchase four new tires. If each tire weighs 21 pounds and costs \$42 plus \$2.50 tax, how much money will you have left after buying the tires?

$$250 - 4(42 + 2.50) = 250 - 178 \\ = \$72$$

unnecessary

9. An architect is designing a house. The scale on the plan is 1 inch = 6 feet. If the house is to have a length of 90 feet and a width of 30 feet, how long will the line representing the house's length be on the blueprint?

$$\frac{1 \text{ inch}}{6 \text{ ft}}$$

$$90 \text{ ft} \cdot \frac{1 \text{ inch}}{6 \text{ ft}} = \frac{90}{6} = 15 \text{ in}$$

unnecessary

10. A college tutoring center pays math tutors \$8.15 per hour. Tutors earn an additional \$2.20 per hour for each hour over 40 hours per week. A math tutor worked 42 hours one week and 45 hours the second week. How much did the tutor earn in this two-week period?

reg.
pay. $= (42 + 45)(8.15) = \$709.05$

OT. $(2 + 5)(2.20) = 15.40$

$\$724.45$