WHICH PAIR?

Performance Standard 6B.H

Determine possible pairings of numbers and operations that will produce the exact value desired without doing any actual computation accordingly:

- *Mathematical knowledge*: Determine the effects of arithmetic operations with decimals and integers.
- *Strategic knowledge*: Use appropriate strategies to solve the problem.
- *Explanation*: Explain completely and clearly what was done and why it was done.

Procedures

1. ***In order to investigate, represent, and solve problems using number facts, operations, and their properties, algorithms, and relationships (6B),*** students should experience sufficient learning opportunities to develop the following:
   - Determine and describe the effects of arithmetic operations with decimals and integers.

   Note: Students should have experience thinking about mental math strategies.
2. Provide each student a copy of the "Which Pair" task sheet and the rubric. Have students review and discuss the task to be completed and how the rubric will be used to evaluate it.
3. Have the students work individually to solve the problem. Do not help the students or guide their thinking as they solve the problem. No calculators should be used.
4. Evaluate each student's work using the rubric and its guide to determine the performance level. Give each student a score in each of the three categories. The entire set of questions can be judged as a single item. Some parts have multiple solutions. Here are examples for each. There may be others. Part A: 0.4 and 0.74 or 2 and –1.3. Part B: 1.26 and 3.4 or 2 and –1.3. Part C 1.1 and 1.26, or 0.4 and 3.4. Part D 6 and 0.4, or 6 and 0.74.
   - 4 = all four parts are correct while consistently and completely justifying their selections by use of estimation-based strategies and benchmarks and generalizations about computing with positive and negative decimal numbers.
   - 3 = answers are correct, but may revert to actual computation to determine their answers, using guess and check instead of reasoning to determine their selections.
   - 2 = selected one incorrect pair, will generally receive a 2.
   - 1 = selected more than one incorrect pair of numbers for the various criteria.
   - 0 = did not select any correct pairings or have not completed the problem.

   The explanations should include how they found these answers, as well as why these answers are correct.

Examples of Student Work follow

Resources

- Copies of the “Which Pair?” task sheet
- Mathematics Rubric

Time Requirements

- 20 - 30 minutes

NAME _____ DATE _____

WHICH PAIR?

For each of the following, select two numbers from the list provided that will produce a number that fits the given conditions. Justify your selection without doing any actual computation to find the exact values produced by the two numbers you select.

Choose your numbers from the following list:

-1.3 0.4 1.1 0.74 2 1.26 6 5 3.4

A. Select two numbers whose sum is positive but less than 1 ½ , and explain your reasoning.

B. Select two numbers whose difference is between 2 and 3, and explain your reasoning.

C. Select two numbers whose product is between 1 and 2, and explain your reasoning.

D. Select two numbers whose quotient is greater than 6, and explain your reasoning.

"Meets"

Name _____

Date 3.27.01

Which Pair?

For each of the following, select two numbers from the list provided that will produce a number that fits the given conditions. Justify your selection without doing any actual computation to find the exact values produced by the two numbers you select.

Choose your numbers from the following list:

-1.3 0.4 1.1 0.74 2 1.26 6 5 3.4

A. Select two numbers whose sum is positive but less than 1 ½, and explain your reasoning.

-1.3 & 2 bcuz those looked to me the only ones that fit the problems solution.

B. Select two numbers whose difference is between 2 and 3, and explain your reasoning.

6 & 3.4 bcuz I knew that 6 - any # between 3 & 4 would come to an answer between 2 & 3.

C. Select two numbers whose product is between 1 and 2, and explain your reasoning.

.74 & 2 bcuz .74 isn't greater than 1 but bigger than ½ so you'll get a number between 1 & 2

D. Select two numbers whose quotient is greater than 6, and explain your reasoning.

6 & .4 bcuz 6 divided by any # less than 1 gives a greater than 6 #.

6B-HM

"Exceeds"

Name A.

Date 3-9-01

Which Pair?

For each of the following, select two numbers from the list provided that will produce a number that fits the given conditions. Justify your selection without doing any actual computation to find the exact values produced by the two numbers you select.

Choose your numbers from the following list:

-1.3 0.4 1.1 0.74 2 1.26 6 5 3.4

A. Select two numbers whose sum is positive but less than 1 ½, and explain your reasoning. -1.3 and 2
I know that 2 is a bigger than -1.35 it will make -1.3 positive. 2 is not big enough to make -1.3 more than 1½ though. So those two numbers are positive but less than 1½

B. Select two numbers whose difference is between 2 and 3, and explain your reasoning. 6 and 3.4
I chose those two numbers because 3.4 is just a little bigger than 3 and half of 6 is 3. I knew I needed a number a little more than 3 if I was going to use six and there was one 3.4.

C. Select two numbers whose product is between 1 and 2, and explain your reasoning. 2 and 0.74
I knew that using 2 would double the other answer so I need a number more than 0.5 to get more than 1. I also knew I could have a number that is 1 or bigger because that would be too much. 0.74 is bigger than 0.5 and less than 1 so it would equal between 1 and 2.

D. Select two numbers whose quotient is greater than 6, and explain your reasoning. 6 and 0.4.
I chose those numbers because I knew 6 was way bigger than 0.4. That way when divided by 0.4 the answer for sure will be greater than 6. 0.4 would definetly go into 6 more than 6 times.

GB-HE