IDT-PRE-Mo3-T1 Pre-Post Test: Whole Numbers and Integers - Compare and Order Integers

1. Evaluate the expression $|-2|$. (1 point - Remedial)
A. F. 2
B. G. -2
C. H. 0
D. J. 20

Answer: F. 2

- **Step 1: Understand Absolute Value** The absolute value of a number is its distance from zero on a number line. [2] Distance is always a positive value.
- **Step 2: Find the Distance** The number -2 is 2 units away from 0 on the number line.
- **Step 3: State the Answer** Therefore, the absolute value of -2 is 2.

2. Choose the symbol to replace ☐ to make the sentence $3\square-12$ true. (1 point - Remedial)
A. <
B. =
C. >
D. +

Answer: C. >

- **Step 1: Identify the Types of Numbers** The problem compares a positive integer (3) and a negative integer (-12).
- **Step 2: Apply the Number Line Rule** On a number line, any positive number is always to the right of any negative number.
- **Step 3: Conclude the Comparison** Since numbers on the right are always greater, 3 is greater than -12.

3. Choose the set of numbers that is correctly ordered from least to greatest. (1 point - Remedial)
A. {-8, 7, -4, 1}
B. {-7, 5, -1, -2}
C. {-5, -3, 1, -6}
D. J. {-4, -2, 1, 3}

Answer: J. {-4, -2, 1, 3}

- **Step 1: Analyze Option J** Look at the set {-4, -2, 1, 3}.
- **Step 2: Order the Negative Numbers** -4 is to the left of -2 on a number line, so -4 is less than -2. This part is correct.
- **Step 3: Order the Positive Numbers** 1 is to the left of 3 on a number line, so 1 is less than 3. This part is also correct.
- **Step 4: Check the Full Order** The negative numbers come before the positive numbers. The complete order {-4, -2, 1, 3} is correct from least to greatest.

4. Evaluate the expression $|-25|+|36|$. (2 points - On-Level)
A. 11
B. 900
C. 61
D. J. -61

Answer: H. 61

- **Step 1: Evaluate the First Absolute Value** The absolute value of -25 is its distance from zero, which is 25. So, $|-25|=25$.
- **Step 2: Evaluate the Second Absolute Value** The absolute value of 36 is its distance from zero, which is 36. So, $|36|=36$.
- **Step 3: Add the Results** Add the two values together: 25 + 36 = 61.

5. Evaluate the expression $|98|-|-39|$. (2 points - On-Level)
A. 59
B. 137
C. -59
D. -137

Answer: A. 59

- **Step 1: Evaluate the First Absolute Value** The absolute value of 98 is 98. So, $|98|=98$.
- **Step 2: Evaluate the Second Absolute Value** The absolute value of -39 is 39. So, $|-39|=39$.
- **Step 3: Subtract the Results** Subtract the second value from the first: 98 - 39 = 59.

6. Evaluate the expression $|a+c|+b$ if $a=-1$, $b=2$, and $c=-8$. (3 points - Extended)
A. -15
B. 15
C. -3
D. 11
Answer: D. 11

- **Step 1: Substitute the values** Replace the variables in the expression with their given numbers.
  - $|(-1)+(-8)|+2$
- **Step 2: Perform the operation inside the absolute value bars first** + Add the integers inside the bars: -1 + (-8) = -9.
  - $|-9|+2$
- **Step 3: Evaluate the absolute value** Find the distance of -9 from zero, which is 9.
  - $9+2$

Step 4: Perform the final addition Add the remaining numbers: 9 + 2 = 11.

IDT-ETH-Mo1-T1 Pre-Post Test: What is Science Inquiry?

1. A measurement, an observation, or a statement that can be strictly defined is... (1 point - Remedial)
A. a fact.
B. an opinion.
C. a prediction.

Answer: A. a fact.

- **Step 1:** Analyze the question. The question asks for a term that describes something verifiable, like a measurement.
- **Step 2:** Evaluate the options. An opinion is a belief (e.g., "blue is the best color"), and a prediction is a guess about the future. A fact is a statement that can be proven true, which matches the description.

2. Which activity is usually NOT the first step of scientific inquiry? (1 point - Remedial)
A. asking a question
B. gathering information
C. communicating results

Answer: C. communicating results

- **Step 1:** Recall the steps of scientific inquiry. The process usually begins with making observations and asking questions.
- **Step 2:** Evaluate the options. Asking a question and gathering information happen early in the process. Communicating results is what a scientist does after an investigation is complete.
- **Step 3:** Conclude that communicating results is not a first step.

3. Which tool would a scientist use to measure mass? (1 point - Remedial)
A. thermometer
B. graduated cylinder
C. triple-beam balance

Answer: C. triple-beam balance

- **Step 1:** Understand the quantity being measured. Mass is the amount of matter in an object.
- **Step 2:** Identify the function of each tool. A thermometer measures temperature, and a graduated cylinder measures the volume of a liquid. A triple-beam balance is specifically designed to measure mass.

4. Which statement about scientific laws is correct? (2 points - On-Level)
A. Scientific laws are hypotheses.
B. Scientific laws describe patterns in nature.
C. Scientific laws explain why something happens.
D. Scientific laws are the same as scientific theories.

Answer: B. Scientific laws describe patterns in nature.

- **Step 1:** Define a scientific law. A scientific law is a rule that describes a repeatable pattern in nature. It tells you *what* will happen.
- **Step 2:** Define a scientific theory. A scientific theory is a well-supported explanation for *why* something happens.
- **Step 3:** Compare the definitions. A law describes a pattern, while a theory explains it. Therefore, they are not the same, and a law does not explain "why." A law is much more established than a hypothesis. This leaves option B as the correct statement.

5. Physical science includes... (2 points - On-Level)
A. physics and biology.
B. biology and geology.
C. chemistry and physics.
D. oceanography and chemistry.

Answer: C. chemistry and physics.

- **Step 1:** Identify the main branches of science. They are typically categorized as Life Science (Biology), Earth Science (Geology, Oceanography), and Physical Science.
- **Step 2:** Define physical science. Physical science is the study of matter and energy.
- **Step 3:** Categorize the subjects. Physics (the study of forces and energy) and Chemistry (the study of matter and its properties) both fall under Physical Science. Biology is a life science, while geology and oceanography are Earth sciences.

6. Which statement contains a fact and an opinion? (3 points - Extended)
A. The weather is nice today, but I like rainy days best.
B. The wind speed is 30 km/h, so it would be fun to fly a kite.
C. The wind speed is increasing, and the temperature is falling.
D. One centimeter of rain fell today, and the temperature was 17°C.

Answer: B. The wind speed is 30 km/h, so it would be fun to fly a kite.

- **Step 1:** Understand the difference between a fact and an opinion. A fact can be measured or verified. An opinion is a personal belief, feeling, or judgment.
- **Step 2:** Analyze each statement.
  - A: "The weather is nice" and "I like rainy days best" are both opinions.
  - B: "The wind speed is 30 km/h" is a verifiable fact. "It would be fun to fly a kite" is an opinion. This statement contains both.
  - C: Both "wind speed is increasing" and "temperature is falling" are measurable facts.
  - D: Both "one centimeter of rain fell" and "the temperature was 17°C" are measurable facts.
- **Step 3:** Conclude that statement B is the only one that contains both a verifiable fact and a personal opinion.