MATH ASSESSMENT

Topic 1: Unit Rates with Fractions

* Shonda used 1/6 of an oz. of milk to make 1/12 of a bowl of pudding. How many ounces of milk would it take to make a full bowl?
* Ethan used 2/5 of a cup of sugar to make 1/10 of a cake. How many cups of sugar would he need to make a whole cake?
* Maria used 3/8 of a yard of ribbon to decorate 1/4 of a gift box. How many yards of ribbon would she need to decorate the entire box?
* Liam used 1/3 of a gallon of paint to cover 1/6 of a wall. How many gallons would he need to paint the whole wall?
* Sophia used 1/7 of a pound of clay to model 1/14 of a sculpture. How many pounds of clay are needed for the entire sculpture?
* Noah used 1/10 of a litre of juice to fill 1/5 of a bottle. How many litres of juice would it take to fill the whole bottle?

Topic 2: Proportions

* A smoothie recipe uses 3/4​ cup of yogurt for every ½ cup of strawberries. If a large batch requires 3 cups of strawberries, how much yogurt is needed?
* A car can travel 238.5 miles on 7.5 gallons of fuel. At this same rate, how many gallons are needed to travel 420 miles?
* A child weighing 60 pounds is prescribed 1/2​ teaspoon of medicine. The dosage is proportional to weight. How much should a child weighing 84 pounds receive?
* A solution contains 2/5​ grams of salt per 100 mL of water. How many grams of salt are needed for 350 mL?

Topic 3: Constant of proportionality

* Find the constant of proportionality from the table:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| x | 2 | 4 | 6 | 8 |
| y | 6 | 12 | 18 | 24 |

Answer: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

* Does this table represent a proportional relationship? If yes, find the constant of proportionality:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Hours | 1 | 2 | 3 | 4 |
| Miles | 50 | 100 | 150 | 200 |

Answer: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

* A bakery sells cupcakes. Use the table to find the constant of proportionality:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Number of Cupcakes | 3 | 6 | 9 | 12 |
| Total Cost ($) | 9 | 18 | 27 | 36 |

Answer: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

* Find the constant of proportionality

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| x | 5 | 10 | 15 | 20 |
| y | 15 | 30 | 45 | 60 |

Answer: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Topic 4: Percentages

* Emma buys a shirt that costs $40. It’s on sale for 25% off. How much will she save?
* Liam’s restaurant bill is $68. He wants to leave a 20% tip. How much should he leave for the tip?
* A car salesperson earns a 6.5% commission on every car sold. If he sells a car for $32,000, how much commission does he earn?
* A savings account earns 3.2% interest annually. If you deposit $4,500, how much interest will it earn in one year?

Topic 5: Absolute Values

* What is the absolute value of 7?
* What is the absolute value of -9?
* Find |0|.
* Calculate |-15|.
* What is the value of |24|?
* Find the absolute value of -32.
* Which is greater: |-8| or |6|?
* Which is smaller: |12| or |-15|?
* Find |4| + |-3|.
* Calculate |6| - |2|.
* What is |-7| × |2|?
* Find |10| ÷ |2|.
* Which is equal to |-9|? a) -9 b) 0 c) 9 d) -|-9|

Topic 6: Integers

* 41 + (-16) =?
* (-28) + (-12) =?
* 37 + (-37) =?
* (-45) + 27 =?
* 54 + (-39) =?
* Sarah had $35 in her bank account. She spent $42 on groceries, creating a negative balance. What is her new account balance?
* The temperature in Chicago was -8°C in the morning. By noon, it had increased by 13°C. What was the temperature at noon?
* John owes his friend $27. He pays back $15. How much does he still owe his friend?
* A diver starts at 5 meters above sea level and descends 12 meters. What is the diver's new position relative to sea level?
* 19 - (-5) =?
* (-27) - (-12) =?
* 33 - 45 =?
* (-30) - 18 =?
* 25 - (-16) =?
* David had $42 in his wallet. He spent $28 on groceries. How much money does he have left?
* The temperature was 13°C. It dropped by 20°C overnight. What is the new temperature?
* Maria owed $35 to her friend. She paid back $15. How much does she still owe?
* A submarine was at 25 meters below sea level. It descended another 18 meters. What is its new position relative to sea level?
* (-1) × (-31) = ?
* 20 × 5 = ?
* (-6) × 10 = ?
* (-10) × (-8) = ?
* 2 × (-2) × 3 = ?

TOPIC 7: RATIONAL NUMBERS OPERATIONS









