2005 Shoreline Math Olympiad
Team Test Answer Sheet

Team member’s name:

5th Grade Test # 1

* Units and description required.

ANSWERS:

1. Carlos 28 years, Maria 20 years
2. 4, 2, -1
3. 21 dimes, 22 quarters
4. Width 19m, Length 76m
5. 82
6. A = 30°, B = 90°, C = 60°
7. 1.75 hours

2005 Shoreline Math Olympiad
Team Test Answer Sheet

Team member’s name:

5th Grade Test # 2

ANSWERS:

1. Paula 32 years, Bob 20 years
2. Highway 204 miles, City 261 miles
3. 69, 76, 83
4. $1 bills, $5 bills, $20 bills
5. 4 km
6. 15 $1 bills, 7 $5 bills, 7 $20 bills

Teacher's comments:

- Fill in legibly
1. Carlos is 8 years older than his sister Maria. Four years ago, Maria was $\frac{2}{3}$ as old as Carlos. How old are they now?

\[ \text{4 years ago: } \frac{1}{3} \times \text{Carlos} = 8 \text{ years} \Rightarrow \text{Carlos} = 24 \text{ years} \]
\[ \text{Maria} = 16 \text{ years} \]

2. The sum of three numbers is 5. The first number minus the second plus the third is 1. The first minus the third is 3 more than the second. Find the numbers.

\[ \frac{a + b + c = 5}{a - b + c = 1} \Rightarrow b = 2 \]
\[ a + c = 3 \quad \Rightarrow \quad a = 4 \quad \text{and} \quad c = 2 \]

3. A collection of 43 coins consists of dimes and quarters. The total value is $7.60. How many dimes and how many quarters are there?

\[ 43 \times 10 = 430 \]
\[ (760 - 430) = \frac{330}{15} = 22 \]

4. The perimeter of a lot is 190 m. The width is one fourth of the length. Find the dimensions.

\[ 95 = 4w + w \]
\[ \text{width} = 19 \text{ m} \]
\[ \text{length} = 76 \text{ m} \]

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5. The ten’s digit of a two-digit positive integer is two more than three times the unit’s digit. If the digits are interchanged, the new number is thirteen less than half the given number. Find the given integer.

\[ a = 2 + 3 \times b \]  
\[ \frac{1}{2} \times (10a + b) - 13 = a + 10b \]  
\[ 5a + \frac{1}{2}b - 13 = a + 10b \]  
\[ 4a - 13 = 9\frac{1}{2}b \]  

6. In triangle \(ABC\), the measure of angle \(B\) is three times the measure of angle \(A\). The measure of angle \(C\) is \(30^\circ\) greater than the measure of angle \(A\). Find the angle measures.

\[ A + B + C = 180^\circ \]  
\[ A + 3A + A + 30^\circ = 180^\circ \]  
\[ 5A = 150^\circ \]

7. Two motorcycles travel toward each other from Chicago and Indianapolis, which are about 350 km apart, at rates of 110 km/h and 90 km/h. They started at the same time. In how many hours will they meet?

\[ \frac{350 \text{ km}}{(110 + 90) \text{ km/h}} = \frac{3 \text{ hours}}{200} \]

End of test😊 You may KEEP this copy of the test.
2005 Shoreline Math Olympiads
Team Test #2 Grade 5

1. Paula is 12 years older than her brother Bob. Four years from now, Bob will be \( \frac{2}{3} \) as old as Paula. How old are they now?
   \[
   \begin{align*}
   \text{4 years from now} & : \frac{2}{3} \text{ Paula} = 12 \text{ year} \\
   \text{Paula} & = 36 \text{ year} \\
   \text{Bob} & = 24 \text{ year}
   \end{align*}
   \]

2. Dianne Osborne's station wagon gets 18 miles per gallon (mpg) in city driving and 24 mpg in highway driving. The car is driven 465 mi on 23 gal of gasoline. How many miles were driven in the city and how many were driven on the highway?
   \[
   \begin{align*}
   23 \times 18 & = 460 - 46 = 414 \\
   465 - 414 & = 51 \text{ mi} \\
   51 \times 24 & = 204 \\
   204 & = 204 \text{ mi}
   \end{align*}
   \]

3. A basketball team increases its score by seven points in each of three consecutive games. In those three games, the team scored a total of 228 points. What was their score in each game?
   \[
   228 \div 3 = 76 < 83
   \]

4. Lynn has $194 in her purse, consisting of $20, $5, and $1 bills. The number of $1 bills is one less than the total number of $20 and $5 bills. If she has 39 bills in her purse, how many of each denomination does she have?
   \[
   \begin{align*}
   (39 - 1) & = 2 \times 19 \\
   19 & \text{ $1 bills}$ \\
   194 - 19 - 100 & = 75 \\
   20 \times 5 & = 100 \\
   20 - 5 & = 15 \\
   75 \div 15 & = 5 \\
   5 & \text{ $20 bills}$ \\
   15 & \text{ $5 bills}$
   \end{align*}
   \]

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5. Natalie jogs and walks to school each day. She averages 4 km/h walking and 8 km/h jogging. The distance from home to school is 6 km and she makes the trip in 1 hr. How far does she jog in a trip? 

\[
\text{Walk for } \frac{1}{2} \text{ hr} \rightarrow 4 \text{ km} \\
6 \text{ km} - 4 \text{ km} = 2 \text{ km} \\
(8 \text{ km/h} - 4 \text{ km/h}) = 4 \text{ km/h} \rightarrow \frac{2 \text{ km}}{4 \text{ km/h}} = \frac{1}{2} \text{ hr}
\]

6. A customer goes to a bank and gets change for a $50 bill consisting of all $5 bills and $1 bills. There are 22 bills in all. How many of each kind are there?

\[
\frac{50 - 2 \times 1}{5 - 1} = \frac{28}{4} = 7
\]

7. The sum of the digits in a four-digit number is 10. Twice the sum of the thousand’s digit and the ten’s digit is one less than the sum of the other two digits. The ten’s digit is twice the thousand’s digit. The one’s digit equals the sum of the thousand’s digit and the hundred’s digit. Find the four-digit number.

\[
\begin{align*}
\text{th, h, te, on} \\
\text{on + te + h + th = 10} \\
2 \times (\text{th + te}) = \text{on + h - 1} \\
\text{te = 2 + h} \\
\text{on = th + h} \\
\end{align*}
\]

End of test 😊 
You may KEEP this copy of the test.