

**Mount Rainier Math Invitational**  
**Sixth Grade - January 28, 2005**  
**Individual Test**

written by Kate Iwamoto and Michelle Fong

Put all answers on the colored answer sheet. All fraction answers must be reduced. You should leave appropriate answers in terms of  $\pi$ .

<b>Problems 1 through 20 are worth 2 points each</b>	
1	Find the difference between 823 and 384.
2	How many sides does a heptagon have?
3	What is the positive square root of 4?
4	In a right triangle with a $60^\circ$ angle, how many degrees are in the other acute angle?
5	In a rectangle that has an area of 36 square inches and length 4 inches, what is the width in inches?
6	Evaluate: $2560 + 1234 + 6543 - 2560 - 6543 - 1234$
7	Find the product of 25 and 12.
8	What does the expression $5 - 3(2 \cdot 1) + 6^2 - 1$ equal?
9	What is the probability of drawing a red card out a standard deck of 52 cards?
10	Farmer Bob has chickens and pigs. In the farmyard, he counts 70 legs and 22 animals. How many chickens does he have?
11	What is the length of the hypotenuse in a right triangle with two legs with lengths 5 feet and 12 feet?
12	What is the probability of flipping a coin twice and getting two heads in a row?
13	How many seconds are in 3.5 minutes?
14	There are 5 whoopies in 12 whirlies. How many whoopies are there in 60 whirlies?
15	I have 5 chocolate bars and 12 friends and I give 4 chocolate bars to my friends to split equally among themselves. How much of a chocolate bar do they each get?
16	If Long rolls 2 dice, what is the probability that he will roll a sum of 7?
17	Vladimir Radmonovic makes \$5.23 an hour when he sleeps. How much money does he make if he sleeps for 4 hours?
18	Evaluate: $(3! + 2!) \cdot 2!$

19	In a basketball team with 12 players that all shake each other's hand exactly once, how many handshakes take place?
20	Round 599,999 to the nearest thousand place.
	<b>Problems 21 through 30 are worth 3 points each</b>
21	If Michelle can mow a lawn in 6 hours and Kate can mow a lawn in 3 hours, how long, in hours, will it take them to mow a lawn together?
22	How many distinct ways are there to arrange the letters in the word FRISBEE?
23	What is the area of a trapezoid with bases of lengths 10 inches and 20 inches and a height of 12 inches?
24	In a circle with area $49\pi$ square feet, what is the diameter in feet?
25	What is $x$ if $25x - 34 = 16 + 9x$ ?
26	How many $3'' \times 3''$ tiles are needed to tile a floor measuring $4' \times 4'$ ?
27	Allen Iverson climbs a mountain. Every day he goes up 1,200 feet and every night he slides down 13 inches. If the very tall mountain is 200,000 feet high, how many days will it take for him to reach the top of the mountain?
28	What is the 13th number in the following sequence: 14, 16, 19, 23, 28...?
29	What is the slope of the line perpendicular to the line $y = 54x + 23$ ?
30	<p>What is the area of the following figure (the shape on the left is a semi-circle and the top and bottom lines of the shape are parallel)?</p> 