

Whatcom County Math Championship – 2013

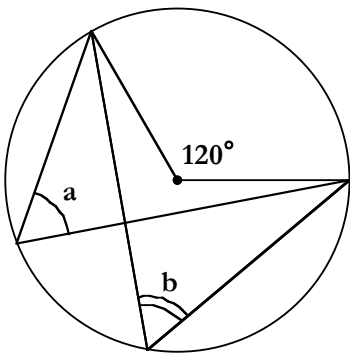
Potpourri – 4th Grade

1. How many prime numbers are there between 40 and 100?
2. What is the next term in this sequence: 5, 8, 12, 17, 23, _____?
3. How many times will you use the number 8 when writing the numbers from 1 to 100?
4. Yesterday, Abby beat Heather at chess in 40% of their matches. Heather won 9 matches. How many matches did Abby win?
5. Hanzel has 3 more brothers than sisters. How many more brothers than sisters does his sister Gretel have?
6. What two-digit number is three times the sum of its digits?
7. How many positive integers are factors of 96?
8. What is the least common denominator of $\frac{1}{12}$, $\frac{4}{15}$, and $\frac{5}{18}$?
9. A basketball player made 8 baskets during a game. Each basket was worth either 2 or 3 points. How many different numbers could represent the total points scored by the player?
10. How many positive square numbers are there less than 1,000,000?

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Potpourri – 5th Grade

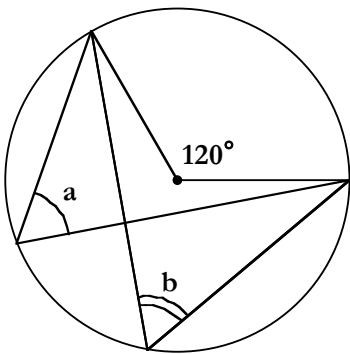
1. Yesterday, Abby beat Heather at chess in 40% of their matches. Heather won 9 matches. How many matches did Abby win?
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6. A basketball player made 8 baskets during a game. Each basket was worth either 2 or 3 points. How many different numbers could represent the total points scored by the player?
7. How many positive square numbers are there less than 1,000,000?
8. A regular polygon is a polygon that has all equal sides and all equal angles. Ana wants to pick a regular polygon and place copies of it around a point, so that the polygons edges all line up and the copies go all the way around the point. The regular polygon with the smallest number of sides that she **cannot** do this with has how many sides?
9. Compute $3 + 6 + 9 + \dots + 2007 + 2010 + 2013 - 4 - 7 - 10 - \dots - 2005 - 2008 - 2011$.
10. In the circle below, the central angle is 120° , and angles **a** and **b** are inscribed on the circle. What is the sum of the angles **a** and **b**.



Whatcom County Math Championship – 2013

Potpourri – 6th Grade

1. How many positive integers are factors of 96?
2. What is the least common denominator of $\frac{1}{12}$, $\frac{4}{15}$, and $\frac{5}{18}$?
3. A basketball player made 8 baskets during a game. Each basket was worth either 2 or 3 points. How many different numbers could represent the total points scored by the player?
4. How many positive square numbers are there less than 1,000,000?
5. A regular polygon is a polygon that has all equal sides and all equal angles. Ana wants to pick a regular polygon and place copies of it around a point, so that the polygons edges all line up and the copies go all the way around the point. The regular polygon with the smallest number of sides that she **cannot** do this with has how many sides?
6. Compute $3 + 6 + 9 + \dots + 2007 + 2010 + 2013 - 4 - 7 - 10 - \dots - 2005 - 2008 - 2011$.
7. In the circle below, the central angle is 120° , and angles **a** and **b** are inscribed on the circle. What is the sum of the angles **a** and **b**.

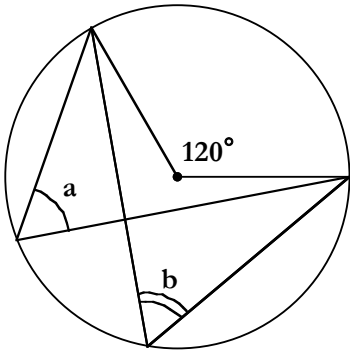


8. How many times will you use the number 8 when writing the numbers from 1 to 1000?
9. The symbol $3!$ means three factorial and is evaluated as $3 \times 2 \times 1$, which is 6. Suppose $n!$ ends in exactly 4 zeros after multiplying it out. What is the smallest value n can have?
10. What is then next number in this sequence: $\frac{2}{9}$, $\frac{1}{3}$, $\frac{1}{2}$, $\frac{3}{4}$, _____. **Write your answer as a reduced fraction.**

Whatcom County Math Championship – 2013

Potpourri – 7th + 8th Grade

1. How many positive square numbers are there less than 1,000,000?
2. A regular polygon is a polygon that has all equal sides and all equal angles. Ana wants to pick a regular polygon and place copies of it around a point, so that the polygons edges all line up and the copies go all the way around the point. The regular polygon with the smallest number of sides that she **cannot** do this with has how many sides?
3. Compute $3 + 6 + 9 + \dots + 2007 + 2010 + 2013 - 4 - 7 - 10 - \dots - 2005 - 2008 - 2011$.
4. In the circle below, the central angle is 120° , and angles **a** and **b** are inscribed on the circle. What is the sum of the angles **a** and **b**.



5. How many times will you use the number 8 when writing the numbers from 1 to 1000?
6. The symbol $3!$ means three factorial and is evaluated as $3 \times 2 \times 1$, which is 6. Suppose $n!$ ends in exactly 4 zeros after multiplying it out. What is the smallest value n can have?
7. What is then next number in this sequence: $\frac{2}{9}, \frac{1}{3}, \frac{1}{2}, \frac{3}{4}, \underline{\hspace{2cm}}$. **Write your answer as a reduced fraction.**
8. If $a \otimes b = \frac{a - b}{a + b}$, what is $\frac{8 \otimes 4}{4 \otimes 8}$?
9. Find the least whole number **n** greater than 60 for which
 - a) **n** divided by 5 leaves a remainder of 3
 - b) **n** divided by 9 leaves a remainder of 4
10. If a and b are positive numbers and $a^2 - b^2 = 6$, and $a - b = 2$, what is $a + b$?