

## **Washington State Math Championship 2005**

### **Mental Math Grades 5**

1. What is the volume of a cube with edge 7?
2. What is the perimeter of a square that has an area 25?
3. What is one eleventh times 132?
4. What is the sum of 70, 456, and 25?
5. What is 15 percent of 500?
6. What is the perimeter of a regular octagon with a side length of 16?
7. What is the total number of degrees of the interior angles of a square and a triangle?
8. How many million is one-hundred-twenty-thousand times 500?
9. A six-sided die is tossed and a card is drawn from a standard deck. What is the probability of getting an odd number on the die and even number from the deck?  
(Write your number as a reduced fraction)
10. What is the largest factor common to both seventy-five and ninety-nine?
11. What is the difference between five cubed and nine squared?
12. Radii of a circle cut it into 9 equal sectors. The central angle of each sector is how many degrees?
13. What is 5 factorial?

14. What is the square root of 729?
15. Six thousand is sixty percent of what number?
16. What is the difference between five-sevenths and four-ninths?
17. What is the square root of the perfect square 361?
18. What is one-half the square root of 20 squared?
19. What is five-fourths of the difference between 42 and 26?
20. What is the product of 76 and 50?

## **Washington State Math Championship 2005**

### **Mental Math Grades 6**

1. What is the perimeter of a regular octagon with a side length of 16?
2. What is the total number of degrees of the interior angles of a square and a triangle?
3. How many million is one-hundred-twenty-thousand times 500?
4. A six-sided die is tossed and a card is drawn from a standard deck. What is the probability of getting an odd number on the die and even number from the deck? (Write your number as a reduced fraction)
5. What is the largest factor common to both seventy-five and ninety-nine?
6. What is the difference between five cubed and nine squared?
7. Radii of a circle cut it into 9 equal sectors. The central angle of each sector is how many degrees?
8. What is 5 factorial?
9. What is the square root of 729?
10. Six thousand is sixty percent of what number?
11. What is the difference between five-sevenths and four-ninths?
12. What is the square root of the perfect square 361?
13. What is one-half the square root of 20 squared?

14. What is five-fourths of the difference between 42 and 26?
15. What is the product of 76 and 50?
16. Subtract two-thirds from the product of 15 and 16. Express your answer as a reduced fraction.
17. Start with 19, triple it, add 7, and take the square root.
18. What is the sum of positive 63, negative 8, negative 107, and positive 24?
19. What is the probability of rolling a sum of six with a pair of dice?
20. What is five times the square root of 196?

## **Washington State Math Championship 2005**

### **Mental Math Grades 7**

1. What is the difference between five cubed and nine squared?
2. Radii of a circle cut it into 9 equal sectors. The central angle of each sector is how many degrees?
3. What is 5 factorial?
4. What is the square root of 729?
5. Six thousand is sixty percent of what number?
6. What is the difference between five-sevenths and four-ninths?
7. What is the square root of the perfect square 361?
8. What is one-half the square root of 20 squared?
9. What is five-fourths of the difference between 42 and 26?
10. What is the product of 76 and 50?
11. Subtract two-thirds from the product of 15 and 16. Express your answer as a reduced fraction.
12. Start with 19, triple it, add 7, and take the square root.
13. What is the sum of positive 63, negative 8, negative 107, and positive 24?
14. What is the probability of rolling a sum of six with a pair of dice?

15. What is five times the square root of 196?
16. What is the slope between the points  $(-7, -4)$  and  $(-16, -2)$ ? Express your answer as a fraction.
17. What is the combined volume of three cubes that have edge lengths of 2, 3 and 4?
18. What is 20% of one fourth of 80?
19. What is the radius of a circle with area  $196\pi$ ?
20. What is the sum of the prime factorization of 625?

## Washington State Math Championship 2005

### Mental Math Grades 8

1. What is the difference between five-sevenths and four-ninths?
2. What is the square root of the perfect square 361?
3. What is one-half the square root of 20 squared?
4. What is five-fourths of the difference between 42 and 26?
5. What is the product of 76 and 50?
6. Subtract two-thirds from the product of 15 and 16. Express your answer as a reduced fraction.
7. Start with 19, triple it, add 7, and take the square root.
8. What is the sum of positive 63, negative 8, negative 107, and positive 24?
9. What is the probability of rolling a sum of six with a pair of dice?
10. What is five times the square root of 196?
11. What is the slope between the points (-7, -4) and (-16, -2)? Express your answer as a fraction.
12. What is the combined volume of three cubes that have edge lengths of 2, 3 and 4?
13. What is 20% of one fourth of 80?
14. What is the radius of a circle with area  $196\pi$ ?
15. What is the sum of the prime factorization of 625?

16. What is the volume of a cylinder with height of four and a radius of six?
17. What is  $4/25$  to the  $\frac{1}{2}$  power?
18. What is the quantity  $1/4 + 1/9$  multiplied by 36?
19. A cube with a volume of twenty-seven is combined with 26 others to form a larger cube. What is the surface area of the new, larger cube?
20. What is the sum of twelve point seven five and three point four and six point eight two.



Answers Mental Math 2005

1. 343
2. 20
3. 13
4. 551
5. 75
6. 128
7. 540
8. 60
9.  $5/26$
10. 3
11. 44
12. 40
13. 120
14. 27
15. 10,000
16.  $17/63$
17. 19
18. 10
19. 20
20. 3800
21.  $718/3$
22. 8
23. -28
24.  $5/36$
25. 70
26.  $-2/9$  or  $2/-9$
27. 99
28. 4
29. 14
30. 20
31. 144 or 452.389
32.  $2/5$
33. 13
34. 486
35. 22.97