

NAME _____

SCHOOL _____

2009 Middle School Math Festival**Individual Round: Prealgebra**

1. Darnell needs to raise \$176 to buy his favorite bicycle. He has saved \$49 and his Mom agrees to pay him \$12 each time he mows the yard. If he continues to earn \$12 for each yard, how many yards must he mow to be able to buy the bicycle?

- A. 9 yards B. 11 yards C. 15 yards D. 19 yards

2. Calculate: $5[(46-14) \div 4]$

- A. 40 B. 213 C. 227 D. 13

3. Evaluate: $(25 - x) + \frac{4yz}{2}$ if $x = 14$, $y = 5$, and $z = 6$.

- A. -49 B. 18.5 C. 71 D. 251

4. Evaluate: $|x| - |y|$ if $x = -1$ and $y = 19$.

- A. 20 B. -20 C. 18 D. -18

5. Eight less than the quotient of a number and six is -14. What is the number?

- A. -1 B. -132 C. -36 D. -76

6. Kendra hasn't missed school in 245 days. This is twenty days less than five times the number of days it has been since Brandon has missed a day of school. How many days has it been since Brandon missed a day of school?

- A. 53 B. 45 C. 24 D. 12

7. Write the prime factorization of 120. Use exponents for repeated factors.

- A. $4 \cdot 30$ B. $2 \cdot 3 \cdot 5$ C. $2^3 + 3 + 5$ D. $2^3 \cdot 3 \cdot 5$

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8. Simplify the fraction: $\frac{372}{996}$

- A. Simplified B. $\frac{31}{83}$ C. $\frac{31}{996}$ D. $\frac{32}{996}$

9. Evaluate: $1\frac{1}{3} \times 1\frac{5}{8}$

- A. $2\frac{11}{12}$ B. $\frac{5}{24}$ C. $2\frac{1}{6}$ D. $1\frac{5}{24}$

10. Three friends picked $5\frac{1}{2}$ bushels of apples at the orchard and evenly divided them between the three of them. How many bushels did each person take home?

- A. $1\frac{1}{6}$ B. $1\frac{5}{6}$ C. $1\frac{3}{5}$ D. $1\frac{1}{3}$

11. If a recipe calls for $1\frac{1}{4}$ pounds of ground beef to make 2 pounds of chili, how many pounds of chili can be made with 3 pounds of ground beef?

- A. $2\frac{2}{5}$ B. $3\frac{3}{4}$ C. $4\frac{1}{4}$ D. $4\frac{4}{5}$

12. Evaluate $\frac{1}{8} = \frac{3}{5} + k$

- A. $-\frac{29}{40}$ B. $\frac{19}{40}$ C. $\frac{29}{40}$ D. $-\frac{19}{40}$

13. What is the 7th term of the sequence? -3, 9, -27, 81, ...

- A. -2187 B. 729 C. 6561 D. 2187

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14. 80 cm/sec = _____ m/min

- A. 480 B. 40 C. 42 D. 48

15. The distance between two cities on a map is measured to be 4 inches. The actual distance between the cities is 448 miles. The scale of the map is 1 inch = _____ miles.

- A. 110 B. 11.2 C. 112 D. 120

16. A clock radio which normally sells for \$39.95 is on sale at a 15% discount. What is the sale price, before sales tax? Round to the nearest hundredth.

- A. \$45.94 B. \$24.95 C. \$5.99 D. \$33.96

17. Solve for t : $6 \geq -\frac{t}{5}$

- A. $t \geq 30$ B. $t \leq 1$ C. $t \geq -30$ D. $t \leq -30$

18. Find the x -intercept and y -intercept for the graph of the equation, $x + 2y = 10$.

- A. 11; 5 B. 10; 5 C. 5; 10 D. 10; 4

19. Find the slope of the line passing through these two points: (7, -5) and (-1, 8).

- A. $-\frac{13}{8}$ B. 0 C. $\frac{13}{8}$ D. $-\frac{8}{13}$

20. What is the distance between the following pair of points: (-9, 3) and (-1, 7). Round the answer to the nearest tenth.

- A. 14.1 B. 80 C. 6.9 D. 8.9

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21. A 6-foot tall man is standing some distance away from a light pole. The length of his shadow on the ground is 8 feet. The tip of his shadow is 20 feet from the base of a light pole. What is the height of the light pole?

- A. 24 feet B. 48 feet C. 15 feet D. 14 feet

22. Angles V and W are complementary. If $m\angle V = x + 2$ and $m\angle W = x - 6$, what is the measure of the two angles?

- A. $49^\circ, 41^\circ$ B. $94^\circ, 86^\circ$ C. $47^\circ, 43^\circ$ D. $52^\circ, 46^\circ$

23. Find the total surface area of a cylinder with a diameter of 28 yards and a height of 8.8 yards. Round the answer to the nearest whole number.

- A. 1231 yd^2 B. 6471 yd^2 C. 774 yd^2 D. 2005 yd^2

24. What is the median score for the math test?

- A. 76
B. 78
C. 79
D. 80

Math Test Scores

Stem	Leaf
5	1 3 5 9
6	1 6 9
7	4 6
8	0 1 2 4 9
9	2 2 3 6
	9 2 = 92

25. How many ways can 4 video tapes be borrowed from a collection of 25 video tapes?

- A. 53,130 ways B. 15,504 ways C. 12,650 ways D. 303,600 ways

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26. A bag contains 6 blue marbles, 7 black marbles, 4 orange marbles, and 3 green marbles. A marble is drawn without looking, and then replaced before the next marble is drawn. What is the probability of picking a blue marble, an orange marble, and then a green marble?

A. $\frac{9}{1000}$

B. $\frac{7}{190}$

C. $\frac{6}{35}$

D. $\frac{3}{500}$

27. An 8-sided die is rolled. What are the odds of NOT rolling a 2, 5, or 8?

A. 3:7

B. 5:3

C. 3:8

D. 2:5

28. Find the difference: $(6c^3 + 8c^2 + 7) - (3c^3 + 6c - 7)$

A. $3c^3 + 2c^2 + 14$

C. $3c^3 + 8c^2 + 6c$

B. $3c^3 + 8c^2 - 6c$

D. $3c^3 + 8c^2 - 6c + 14$

29. Find the sum of the mean and the median for the following data: {30, 44, 32, 41, 38, 48, 40, 32, 50}. Round to the nearest tenth.

A. 79.4

B. 80.4

C. 75.5

D. 84.4

30. Solve for d : $6(d+6) = 4(d-6) + 2d$.

A. all real numbers

B. -5

C. -60

D. \emptyset (empty set)