

Orange County Middle School Math Contest (2007)

Written Round – Middle School Courses – Form 1

- *Place all answers on the answer sheet provided.*
- *Do all of your work in the space provided on the test pages.*
- *Turn in your test at the end of this round.*
- *You may NOT use a calculator on this test.*

1. Barry orders a wallet for \$8.99, a sweater for \$14.49, and a watch for \$72.49 from a mail-order catalog. He adds \$11.52 for tax, shipping, and handling. What is the total cost of Barry's order?

- A. \$107.37 C. \$95.97
B. \$107.49 D. \$96.09

2. Fill in the blank to make the statement true: $11 - 6 \times 1.4$ _____ $(11 - 6) \times 1.4$.

- A. =
B. >
C. <

3. Solve for x : $\frac{7 \text{ mi}}{18 \text{ min}} = \frac{x \text{ mi}}{162 \text{ min}}$

- A. 64 C. 63
B. 65 D. 66

4. While visiting your cousin, who lives in another state, you buy a souvenir for \$12.00. The sales clerk tells you the total cost, including tax, is \$12.72. What is the sale tax rate?

- A. 3% C. 12%
B. 6% D. 72%

5. On day at 3:00 A.M., the temperature was -11°F in Kodiak, Alaska. At 10:00 A.M., the temperature was 24°F . What was the average change in temperature per hour?

- A. -35°F per hour C. -5°F per hour
B. 35°F per hour D. 5°F per hour

6. Calculate the product: $(0.5)(10)(1)$

- A. 6 C. 11.5
 B. 5 D. 10.5

7. Your class collected more than 360 cans of food for the annual food drive. In the first week, 145 cans were collected. Write an inequality which could be used to solve how many cans, c , were collected in the second week.

- A. $c - 145 \geq 360$ C. $c + 145 \geq 360$
 B. $145 + c > 360$ D. $145 + c < 360$

8. Find the LCM of 20 and 24.

- A. 120 C. 240
 B. 480 D. 4

9. Write the fraction as a decimal: $\frac{5}{16}$

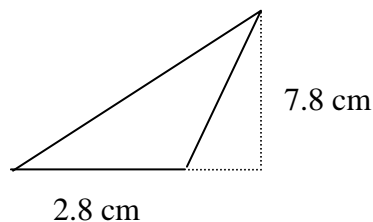
- A. $0.\overline{3125}$ C. $0.\overline{31}$
 B. 0.3125 D. $0.3\overline{125}$

10. You travel 209 kilometers in 5 hours. Write the unit rate.

- A. 34.83 km/hr C. 52.25 km/hr
 B. 0.02 km/hr D. 41.8 km/hr

11. Find the area of the triangle.

- A. 21.84 cm^2 C. 10.92 cm^2
 B. 21.2 cm^2 D. 10.6 cm^2



12. Find three solutions of the equation: $y = -2x$

- A. (0, 0), (3, -8), (-2, 4) C. (-2, 4), (1, -2), (0, 0)
 B. (1, -2), (0, 0), (-1, 1) D. (-2, 4), (1, -2), (2, -3)

13. Rubber stripping for a trailer must be 6.96 meters long. You have a 57.5 meter length of rubber stripping. Estimate how many pieces can be cut from this strip?

- A. 9
B. 7
- C. 10
D. 8

14. Find the difference: $96 - 76.46$

- A. 19.54
B. 18.54
- C. 20.46
D. 20.54

15. A triangle has 3 sides which measure $5\frac{1}{4}$ ft, $2\frac{5}{6}$ ft, and $8\frac{7}{12}$ ft. What is the perimeter?

- A. $16\frac{1}{12}$ ft
B. $15\frac{2}{3}$ ft
- C. $15\frac{13}{22}$ ft
D. $16\frac{2}{3}$ ft

16. Solve for b : $\frac{2}{5}b - 5 = 15$

- A. 50
B. 25
- C. 20
D. 8

17. Mariah sold her skates. First, she tried to sell them at half of the price she originally paid. A week later, she took \$14 off the asking price. A week later, she lowered the price an additional \$4 and finally sold the skates for \$31. What was the original price?

- A. \$94
B. \$98
- C. \$49
D. \$80

18. One angle measures 30° . What does its complementary angle measure?

- A. 70°
B. 60°
- C. 150°
D. 75°

19. Find the area of a parallelogram with a base of 95 cm and a height of 9.6 cm.

- A. 456 cm^2
B. 912 cm^2
- C. 92.16 cm^2
D. $9,025 \text{ cm}^2$

20. A right triangle has one leg of 6 and the hypotenuse of 18. To the nearest whole number, how long is the other leg?

- A. 17
B. 288
C. 19
D. 36

21. Lisa wants to buy a phone card for \$5. Company X charges \$0.36 for the first minute and \$0.08 for each additional minute. Company Y charges \$0.52 for the first minute and \$0.14 for each additional minute. If Lisa makes just one phone call, which company gives her more minutes for \$5? How many more minutes?

- A. Company Y; about 32 minutes
B. Company X; about 59 minutes
C. Company X; about 27 minutes
D. Company Y; about 27 minutes

22. Order the measurements from least to greatest: 2,720 mL, 24.91 L, 0.0268 kL

- A. 2,720 mL, 24.91 L, 0.0268 kL
B. 24.91 L, 0.0268 kL, 2,720 mL
C. 2,720 mL, 0.0268 kL, 24.91 L
D. 0.0268 kL, 24.91 L, 2,720 mL

23. Evaluate $(c - b)^2 + a^2$ for $a = -5$, $b = -2$, and $c = -4$.

- A. 17
B. 61
C. 37
D. 29

24. Evaluate $a - b + c$ for $a = 4\frac{1}{5}$, $b = 2\frac{7}{20}$, and $c = 3\frac{1}{4}$.

- A. $5\frac{1}{10}$
B. $5\frac{2}{5}$
C. $9\frac{4}{5}$
D. $2\frac{1}{10}$

25. The table at the right is a survey given to shoppers asking which type of soda they preferred. What is the probability that 1 shopper, selected at random, would prefer neither Soda A nor Soda B.

Soda	A	B	C	D	E
Numbers Preferred	10	15	9	11	7

- A. $\frac{21}{26}$ C. $\frac{25}{52}$
 B. $\frac{25}{27}$ D. $\frac{27}{52}$

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

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

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

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

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

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

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

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

30. Evaluate $(m + n)^3$ if $m = -1$ and $n = -5$.

- A. 216 C. $-\frac{1}{126}$
 B. 18 D. $-\frac{1}{216}$

31. 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. $1\frac{1}{6}$ C. $1\frac{3}{5}$
 B. $1\frac{5}{6}$ D. $1\frac{1}{3}$

32. Ching-yu’s goal is to workout an average (mean) of 40 minutes per day. The table shows her times for the week so far. How long must she workout on Saturday to reach her goal of averaging 40 minutes per day?

Weekly Workout Times	
Day	Time of Workout
Sunday	30 minutes
Monday	45 minutes
Tuesday	50 minutes
Wednesday	35 minutes
Thursday	20 minutes
Friday	30 minutes

- A. 35 minutes C. 60 minutes
 B. 40 minutes D. 70 minutes

33. Write the next three terms of the sequence: -3, 9, -27, 81, ...

- A. -96, 111, -126 C. 243, -729, 2187
 B. -243, -729, -2187 D. -243, 729, -2187

34. 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 C. 112
 B. 11.2 D. 120

35. Lynette has \$230 in her savings account. For her birthday, she receives \$75 cash as gifts and deposits it into her savings account. What was her percent of change in her account balance? Round to the nearest tenth.

- A. 24.6% C. 754.4%
 B. 32.6% D. 110.9%

36. Find the difference: $\frac{m}{3m-6} - \frac{6}{9m-18}$.

A. $\frac{m-6}{12(m-2)}$ B. $\frac{m}{3}$ C. $\frac{1}{3}$ D. $\frac{m-6}{3(m-2)}$

37. Solve for p : $-8p = -3\frac{1}{4}$

A. $4\frac{3}{4}$ C. $\frac{13}{32}$

B. $-\frac{13}{32}$ D. 26

38. Solve for s : $\sqrt{7s-20} = 6$

A. $\frac{26}{7}$ C. 8

B. $\frac{16}{7}$ D. -2

39. Write an equation of the line that passes through the points $(-5, -2)$ and $(3, -1)$,

A. $y = \frac{1}{8}x + \frac{11}{8}$ C. $y = -\frac{1}{8}x - \frac{11}{8}$

B. $y = \frac{1}{8}x + \frac{8}{11}$ D. $y = \frac{1}{8}x - \frac{11}{8}$

40. Write the slope-intercept form of an equation for the line which passes through the point $(4, 4)$ and is perpendicular to the equation $2x - y = 4$.

A. $y = 2x + 2$ C. $y = \frac{1}{2}x + 6$

B. $y = -\frac{1}{2}x + 6$ D. $y = 4x + 2$