



MONTANA COUNCIL OF TEACHERS OF MATHEMATICS

2011 MATH CONTEST

TEAM 7-8

DIRECTIONS: DO NOT WRITE ON THIS TEST. Place the best answer for each question on the separate answer sheet.

- How many diagonals can be drawn in a decagon?
a.) 14 b.) 20 c.) 30 d.) 35
- An adult human brain weighs about 52.8 ounces. Approximately, how much is this in pounds?
a.) 3.3 lbs b.) 2.93 lbs c.) 884.3 lbs d.) 0.16 lbs
- A bicycle wheel has a 26 inch diameter. About how many revolutions will it make in one mile?
a.) 100 b.) 820 c.) 776 d.) 648
- A baby, Irma, is born at 2 pm in Arizona, where Daylight Savings Time is not observed. Then, 192746 hours later, she is married in Arizona. At what hour does her wedding take place?
a.) 1 pm b.) 2 pm c.) 3 pm d.) 4 pm
- If \$1000 is deposited for 15 months at 10% simple interest per year, how much interest is earned?
a.) \$90 b.) \$100 c.) \$125 d.) \$140
- A truck drove for 4 hours, traveled 45 miles and still had 75 miles left. What percent of the trip had it covered?
a.) 37.5% b.) 45% c.) 55% d.) 62.5%
- The sum of two positive integers is 13. What is the smallest possible sum of their reciprocals?
a.) $\frac{1}{13}$ b.) $\frac{13}{42}$ c.) $\frac{1}{6}$ d.) $\frac{1}{7}$
- If you give 2 dozen pairs of pears to 4 pairs of bears and each bear ate equal number of pears, then each bear ate how many pears?
a.) 12 b.) 10 c.) 8 d.) 6
- If 1 zilch is equal to 13 milches, and 1 milch is equal to 23 pilches, how many pilches are equal to 26 zilches?
a.) 598 b.) 7774 c.) 3887 d.) 338
- The square of the sum of 3 consecutive integers must be divisible by
a.) 2 b.) 4 c.) 9 d.) 16
- What is the product of all the even numbers that are both greater than -10 and less than 10.
a.) 38400^2 b.) 384^2 c.) 384 d.) 0
- While driving home from work, Sally runs over a nail, causing a tire to start leaking. She estimates that her tire is leaking one pound per square inch (psi) every 20 seconds. Assuming that her tire leaks at a constant rate and her initial pressure was 36 psi, how long will it take her tire to completely deflate?
a.) 1.8 minutes b.) 3.6 minutes c.) 12 minutes d.) 18 minutes

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13. Eric and Margaret make \$1460 together one week. Eric makes \$20 per hour, and Margaret makes \$25 per hour. If Eric worked 10 hours more than Margaret one week, how many hours did Margaret work?
a.) 25 b.) 28 c.) 33 d.) 38
14. Joe reads 20 words/min, and Jan reads 80 words/min. How many minutes will it take Joe to read the same number of words that it takes Jan 40 minutes to read?
a.) 10 b.) 20 c.) 80 d.) 160
15. How many ways are there to choose a potato and two green vegetables from a choice of three potatoes and seven green vegetables?
a.) 126 b.) 63 c.) 21 d.) 252
16. How many lines of symmetry does a regular octagon have?
a.) 4 b.) 8 c.) 16 d.) 20
17. Jackie and Dustin raise chickens and sheep. When they counted heads, they got 10. When they counted feet, they got 34. How many chickens do they have?
a.) 3 chickens b.) 7 chickens c.) 3 sheep d.) 10 chickens
18. How many square inches of cardboard is needed to make a cereal box that is $9\frac{1}{2}$ inches tall, $5\frac{1}{4}$ inches wide, and 2 inches deep? (do not include overlapping flaps).
a.) 79.4 in^2 b.) 99.75 in^2 c.) 158.75 in^2 d.) 199.5 in^2
19. Robinson Crusoe found a bottle whose only message listed all the prime numbers between 100 and 110. How many numbers were on the message?
a.) 1 b.) 2 c.) 3 d.) 4
20. 1% of 1% of some number is 1. The number is
a.) 100 b.) 1000 c.) 10000 d.) 100000
21. A car is driving north at 74 miles per hour from point A. Another car is driving due east at 65 miles per hour. How far are the cars away from each other after 2 hours?
a.) 175.87 mi b.) 232.66 mi c.) 196.99 mi d.) 202.43 mi
22. What is the difference in area between a square with base of four inches; and a parallelogram with a base of four inches, a slant height of 6 inches, and a height of four inches?
a.) 0 sq inches b.) 2 sq inches c.) 4 sq inches d.) 8 sq inches
23. Dimitri has 40 math problems to do for homework. If he does 40% of the assignment in one hour, how long will it take for Dimitri to complete the whole assignment at this rate?
a.) 1.5 hours b.) 2 hours c.) 2.5 hours d.) 3 hours
24. Determine the volume of a sphere to the nearest cm if the surface area is 113 cm^2 .
a.) 113 cm^3 b.) 339 cm^3 c.) 37.7 cm^3 d.) 226 cm^3
25. An ant crawls outside a square of side 1 cm, at all times remaining exactly 1 cm from the boundary of the square. In square cm, the area bounded by one complete circuit of the ant is most nearly equal to
a.) 7 b.) 8 c.) 9 d.) 10

TEAM TEST 7-8 2011 Answer Key

1. D
2. A
3. C
4. D
5. C
6. A
7. B
8. D
9. B
10. C
11. D
12. C
13. B
14. D
15. A
16. B
17. A
18. C
19. D
20. C
21. C
22. A
23. C
24. A
25. B