

FRANKLIN MATH BOWL

7th Grade

Written Test

2005

1. Simplify $10.5 + \frac{4.5}{.009}$

a) $1666\frac{2}{3}$

b) 15.5

c) 510.5

d) 60.5

2. Simplify $7\frac{12}{35} + 8\frac{5}{7}$

a) $15\frac{22}{35}$

b) $16\frac{2}{35}$

c) $15\frac{11}{35}$

d) $16\frac{22}{49}$

3. Consider the pattern:

XO
XXO
XXXO
XXXXO.....

If the pattern continues, what would be the 30th and 31st characters?

a) XO

b) OX

c) XX

d) OO

4. A circle has a diameter of 6 cm. A central angle intersects an arc of 60 degrees on the circumference. Approximately how long is the arc in centimeters?

a) 3.14 cm

b) 6 cm

c) 6.28 cm

d) 12.04 cm

5. The number 3π is closest to which of the following?

a) $\sqrt{85}$

b) $\frac{47}{5}$

c) 9.5

d) 10

6. Which of the following can NOT be the length of the third side of a triangle with two sides measuring 5 inches and 7 inches?

a) 5 inches

b) 13 inches

c) 3 inches

d) 11 inches

7. A jar contains 60 marbles, 8 of which are blue. The probability of picking a red OR blue marble from the jar is $\frac{1}{3}$. How many red marbles are there in the jar?
- a) 8 b) 20 c) 15 d) 12
8. What is the area of a right triangle with sides measuring 5 m, 12 m, and 13 m?
- a) $78 m^2$ b) $32 \frac{1}{2} m^2$ c) $60 m^2$ d) $30 m^2$
9. Sue is making a quilt design and wants to use two regular polygons that tessellate. She chooses a triangle for one of the polygons. Which of the following polygons can she choose for the second?
- a) circle b) octagon c) pentagon d) hexagon
10. On a five hour car trip, Joe traveled at an average speed of 40 mph for 2 hours and then at an average speed of 60 mph for 3 hours. What was the average speed for the five hour trip?
- a) 50 mph b) 52 mph c) 55 mph d) 48 mph
11. Al's home is 4 km due south of his school. His home is 6 km due west of Citizen's Bank. The bus station is 9 km due east of the school. How far is the bus station from the bank?
- a) 19 km b) 5 km c) 7 km d) 6 km
12. The Johnson City Girls' Club had 260 members in 2002. The membership increased 25 % from 1997 to 2002. How many members did the Club have in 1997?
- a) 195 b) 200 c) 220 d) 208

20. What is the mean of the largest and smallest of the following measurements:

.002 km 2.2 cm 222.2 mm .22 m

- a) 1.011 m b) 1.0111 m c) 1.11 m d) 11.101 m

21. John is $4\frac{1}{2}$ feet tall. His shadow at 5 pm is 3 feet long. If the shadow of a tree in his yard at the same time is 20 feet long, how tall is the tree?

- a) $13\frac{1}{3}$ feet b) 30 feet c) 49.5 feet d) 18 feet

22. Solve for A and B :
$$\begin{bmatrix} 2(A-2) & 0 \\ 0 & \frac{5B+1}{2} \end{bmatrix} = \begin{bmatrix} 6A+8 & 0 \\ 0 & 3B \end{bmatrix}$$

- a) $A = -3, B = 1$ b) $A = 3, B = 1$ c) $A = -5/2, B = 2$ d) $A = -3, B = -1/2$

23. Los Angeles is on Pacific Time, which is three hours behind Eastern Time. A plan leaves New York at 8 a.m., has a two-hour layover in Cleveland, and arrives in Los Angeles at 1:45 p.m. What was the actual flying time?

- a) 3 hrs, 45 min b) 6 hrs, 45 min c) 5 hrs, 45 min d) 4 hrs, 45 min

24. Bob has 4 cylindrical tubs full of homemade ice cream, each with a diameter $d = 6$ in and a height $h = 6$ in. He wants to consolidate the four tubs into one. Which of the following could be the dimensions of a cylindrical tub which holds four times as much as one of the smaller tubs?

- a) $d = 6$ in, $h = 12$ in b) $d = 9$ in, $h = 9$ in c) $d = 12$ in, $h = 6$ in d) $d = 12$ in, $h = 12$ in

25. Five numbers have a mean of 64 and a median of 60. If the sum of the largest two numbers is 150 and the mode is less than the median, what is the mode of the five numbers?

- a) 50 b) 52 c) 55 d) can't be determined