2008 Sixth-Grade ASFA Mathematical Examination

1. A sixth-grade teacher gave his students 8 new words to spell on the first day of school. Each day after that the teacher gave 6 new words. How many new words had the students been given in the first 30 days of school?

a. 180
b. 178
c. 182
d. 188

2. Nitish was going on the interstate. He passed a sign, which said that it was 1 ¾ miles to the Montgomery Highway exit and 2 ¼ miles to the Alford avenue exit. He kept on going towards the Alford avenue exit. The next sign he saw said it was ¼ mile to the Montgomery Highway exit. How far was he from the Alford avenue exit when he was at this last sign?

a. ¼
b. ½
c. ¾
d. 1

3. A fair coin is flipped five times. The results, in order, are tails, tails, heads, heads, and tails. If the coin is tossed again, what is the probability that the result will be tails?

a. 1 out of 6
b. 1 out of 2
c. 1 out of 3
d. 1 out of 5
e. 1

4. On Brady's math team, 1/5 of the players walk to practice and 30% are driven by their parents. The remaining 15 players take the bus. How many members are on the math squad?

a. 15
b. 20
c. 30
d. 25
e. 40

5. In triangle ABC, what is the value of x?
(Angle A = 2.5x, angle B = 73.75, and angle C = angle B)

a. 32.5
b. 15.75
c. 16.25
d. 13.0

6. What is the answer to the following question:
0 / 0 = ?
a. 5
b. 1
c. 0
d. undefined
e. NOTA

7. When a calculator rounds an answer to the nearest hundred thousandths place it shows it to be 2.33333. Which problem could have given that answer on the calculator?
a. 2.333 + .33
b. 2 x .333339
c. (7 / 3)
d. 33333 + .2
e. NOTA

8. Mr. Chair loves to jog and wants to enter the Olympics one day. He thinks he can do it if he continues to jog 11 hours a day for the next week. If he burns 111 calories for every hour he jogs, how many calories will he have burned in one week?

a. 1221
b. 8477
c. 8457
d. 8547
e. NOTA

9. Aditi has $38 in total. She went out and bought a gift for $18 on Monday. Later on Tuesday, Aditi bought a book marked $5 having a sales tax of 18% . On Wednesday she accidentally drops a $10 bill into the blender. Luckily, Thursday is her salary day and she gets $17. On Friday she decided to donate the total amount of money she has to charity. How much did she donate to charity?

a. $26.10
b. $22.00
c. $21.20
d. $21.10
e. NOTA

10. If $x = a$ and if $b = y$ then simplify

$$(2x + b - 3x + 5b) + 8x(13 - (63/3))$$

a. $6a - 65b$
b. $6y - 65a$
c. $6y - 57x$
d. $6b - a$
e. NOTA

11. Amiya and Usama were walking down the street one day when he finds a math problem on the ground. Naturally wanting to solve it, they go to work. The problem asks in which quadrant of the Cartesian plane is the midpoint of (-62, 0) , (64, 0) located. Who is correct?

a. Amiya says Quadrant II
b. Usama says Quadrant IV
c. Neither of them are correct
d. Both of them are correct
e. NOTA

12. What is 100% of 10% of 1% of 1% of 1?

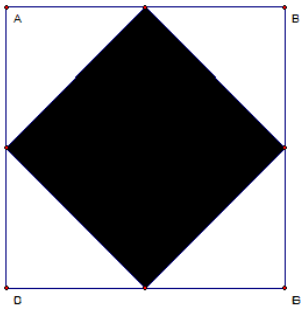
a. .000001
b. .0001
c. .00001
d. .0000001
e. NOTA

13. An extreme jacks league has 252 players and 14 teams, with an equal number of players on each team. If the number of teams was reduced by eight, but the total number of players remained the same, there would be _____ players per team.

a. 10 more players
b. 10 fewer players
c. 24 fewer players
d. 24 more players
e. NOTA

14. 128 doctors recommended the best drink out of three drinks. ⅝ of the doctors said that Monster was the best. 24 doctors said Kool – Aid was the best drink. What percentage of the doctors recommended that Water was the best drink?

a. .0375 %
b. 37.5 %
c. 5 ⅓ %
d. 18.75 %



15. In a figure the outer square has an area of 256 cm^2. The mid points of the adjacent sides of this square are connected together to give an internal square. So, the figure is composed of an inner square (called the midpoint quadrilateral) and 4 congruent triangles. What is the area of the shaded region?

a. 128 cm^2
b. 64 cm^2
c. 2048 cm^2
d. 224 cm^2
e. NOTA

16. What is the sum of all the primes less than 40?

a. 166
b. 197
c. 224
d. 198
e. NOTA

17. D'Andre, Greg, and Coe go snowboarding for the weekend. They are all amazing snowboarders and challenge each other to a contest. After many failed attempts, D'Andre finishes last with ½ as many points as Coe. Greg does the 180° Superman and wins the competition with 10 points more than Coe. Coe ends up as having 18 points. What is the sum of all of their points?

a. 28
b. 9
c. 55
d. 207
e. NOTA

18. If there are 3 flagnards in 8 jigglypuffs, and 3 redpowerrangers in 96 jigglypuffs, then there must be how many flagnards in 51 redpowerrangers

a. 24
b. 204
c. 612
d. 17

19. (1 / 8) of (1 / 16) is how much of (1 / 32)

a. (1 / 128)
b. (1 / 2)
c. (1 / 4)
d. (1 / 16)

20. When Carlton turned 5, he decided to put in as many nickels as his age into a jar (i.e. that year he placed 5 nickels into the jar). How old will he be when he has $9.00 in the birthday jar.

a. 18
b. 19
c. 20
d. 24
e. 16

21. Solve for x

$$-4(8x + 14) + (6x + 4) = 0$$

a. (9 / 13)
b. 0
c. -2
d. (-30 / 19)
e. NOTA

22. What is the largest possible number you can write using only 2 numbers - just 2 numbers, no other mathematical symbols?

a. 99
b. 81
c. 999
d. None of above
No (e) Choice

23. How many different combinations of letters can be made by rearranging the letters on the word BUBBLE?

a. 720
b. 240
c. 5040
d. 120

24. If a#b is defined as $a^2 + b^2/a$, a~b is defined as $(a^3 - b^3 + 2)/(a + 2b)$, and a@b is defined as $ab - a^2/b$, find $(14@7 - 2\#10)^{(3\sim2)}$

a. 4096
b. 4296
c. 4866
d. 4496

25. The leg of a right triangle measures 5 cm and the hypotenuse measures 13cm. Find the area of the triangle.

a. 65 cm^2
b. 50 cm^2
c. 30 cm^2
d. 20 cm^2

Tie Breakers:

E1. Alex, Billie and Carlos play soccer. If after 16 games, Carlos scored 3 goals less than Billie,, Alex scored twice as many goals as Carlos, the rest of the team scored 5 goals more than Alex, and Billie scored 8 goals, how many goals per game did the team average?

E2. What is $2a^3 - 2b^3 + 2c^3 - a^2 + b^2 - c^2 + a - b - c - 76$ if a = 2, b =3, and c = 5?

E3. What is the smallest positive integer that is divisible by 2, 3, 4, 5, 6, 7, 8, and 9?