

Furman Wylie Mathematics Tournament
Senior Exam Answers
March 8, 2008

1. The answer is 42, which is choice (4). I'm actually 46, but am willing to pretend that I'm 42 to make the numbers work out more nicely.
2. The answer is 1260, which is choice (3).
3. The answer is 3200, which is choice (1).
4. The answer is $\frac{\pi}{3} - 1$, which is choice (1).
5. The answer is 0, which is choice (3).
6. The answer is 8, which is choice (3).
7. The answer is 300, which is choice (1).
8. The answer is 2, which is choice (3). Statements numbered 2 and 3 are true.
9. The answer is 21, which is choice (3). Strange trig identities rule!
10. The answer is 1, which is choice (2). The only thing in that set is the number -2 .
11. The answer is 2, which is choice (3).
12. The answer is 1, which is choice (4).
13. The answer is "the area of triangle ABC is twice the area of triangle ABD ", which is choice (3).
14. The answer is 10, which is choice (4). For the record, the number in question is 999999799998010000200001.
15. The answer is "None of the above", which is choice (5). The actual number is 52.
16. The answer is 0, which is choice (3).
17. The answer is 0, which is choice (2).
18. The answer is 4, which is choice (3).
19. The answer is $\frac{32\sqrt{39}}{25}$, which is choice (3).
20. The answer is 27,000,001, which is choice (1). Fun problem!
21. The answer is $(0, 4)$, which is choice (3). Patience is a virtue!
22. The answer is 2, which is choice (4). Hint: think geometrically.
23. The answer is 89, which is choice (1).
24. The answer is $\frac{2072\pi}{7}$, which is choice (3).
25. The answer is $10\sqrt{2/3}$, which is choice (4).
26. The answer is "None of the above", which is choice (5). The actual number is 1999.

27. The answer is 1, which is choice (4). The only such polynomial is the function $p(x) = 0$, which is defined on the cover sheet to have degree zero.
28. The answer is $\frac{5280}{112\pi}$, which is choice (1). There has to be a track question on any test given during SCHSL track season.
29. The answer is 7.2 seconds, which is choice (4).
30. The answer is 30, which is choice (1).
31. The answer is 3265920, which is choice (3).
32. The answer is “None of the Above”, which is choice (5). None of those numbers are prime since they are all divisible by 3.

Bonus 1: The answer is 16.

Bonus 2: The answer is that $b_n = n^2 + 7n - 2$.