

Furman Wylie Mathematics Tournament
Junior Exam Answers
March 10, 2001

1. The answer is 16.
2. The answer is $\frac{5}{6}$, since $x = \frac{1}{2}$ and $y = \frac{1}{3}$.
3. The answer is 25.
4. The answer is 5, since $b = 5$ and $c = 8$.
5. The answer is 50%. Mary Kay is my sister, and Amy and Ben are her kids. Ben loves to play chess.
6. The answer is 21, which is none of the above.
7. The answer is 364 blasts.
8. The answer is $\frac{TS}{CP}$. Didn't think it could be done, did you?
9. The answer is $3\sqrt{11}$. Pythagoras Rules!
10. The answer is 3. Draw the triangle in the Cartesian plane, and think of the "top" as the base. The height is easy to compute.
11. The answer is $\frac{1}{2}$. The only solution to the equation is $x = 1 + -\frac{1}{2}\sqrt{3}$.
12. The answer is 13, which is none of the above.
13. The answer is 10. Darby is my seven-year-old daughter, who is indeed plenty clever. Look for her to be tournament champion in 2011.
14. The answer is 32.
15. The answer is 71.
16. The answer is $\frac{8\sqrt{3}}{9}$.
17. The answer is 55, which is the sum of the integers from 1 to 10. I showed this problem to the nursery director at my church, and she wasn't amused.
18. The answer is 9. Drop a perpendicular from A to \overline{BC} , and think like Pythagoras.
19. The answer is 7.5.
20. The answer is 2, since the smallest prime factor is 101. In fact, the number in question is 101^4 .
21. The answer is 6.
22. The answer is Miss Beagle.
23. The answer is 10, since the roots are $\pm\sqrt{3}$, $\pm\sqrt{2}$.

24. The answer is 25, which is none of the above. Ryan is my nephew who goes to Pickens High School.
25. The answer is 20.
26. The answer is 9.
27. The answer is $\frac{s^3}{t^2}$. If the letters bother you, try working it out with $s = 6$ and $t = 4$ first.
28. The answer is 6. The region is the difference of two squares.
29. The answer is 4. They are 2, 3, 4 and 5.
30. The answer is $\frac{5}{16}$. In order to go 7 games, you would first have to have played 6 games
31. The answer is *BAC*, which is none of the above.
32. The answer is $\frac{4949}{19800}$, which is none of the above.

Bonus No. 1 The answer is $\frac{3+2\sqrt{3}}{2}$.

Bonus No. 2 The answer is about 46,000. If you got within about 500 of that, consider it a victory!