

Furman Wylie Mathematics Tournament  
Senior Exam Answers  
March 19, 2005

1. The answer is  $10!/2!$ , which is choice (3).
2. The answer is  $\{x : x < 1/2\}$ , which is choice (3).
3. The answer is 4, which is choice (2). The integers are 22, 23, 24, and 25.
4. The answer is  $\pi/12$ , which is choice (2).
5. The answer is  $-1$ , which is choice (1).
6. The answer is 27, which is choice (1).
7. The answer is that the product of the roots is  $-4$ , which is choice (3). The roots are 2 and  $-2$ .
8. The answer is "a point", which is choice (5).
9. The answer is that .68, which is choice (4).
10. The answer is  $2^2 \cdot 3^9$ , which is choice (2).
11. The answer is 5, which is choice (2). The numbers in  $U$  are 2, 3, 7, 11, and 17.
12. The answer is 25, which is choice (4).
13. The answer is  $w, x, z, y$ , which is choice (2).
14. The answer is 256, which is choice (4).
15. The answer is  $3\sqrt{3}$ , which is choice (4).
16. The answer is 12, which is choice (5).
17. The answer is 24, which is choice (5).
18. The answer is  $5/9$ , which is choice (2).
19. The answer is 63, which is choice (4). All of them but the first and last!
20. The answer is  $-\sqrt{3}/2 + i/2$ , which is choice (3).
21. The answer is 15 which is choice (1).
22. The answer is 108, which is choice (1).
23. The answer is  $x, w$ , which is choice (2).
24. The answer is  $11/12$ , which is choice (4).
25. The answer is  $\sqrt{5}/12$ , which is choice (1).
26. The answer is 500, which is choice (3).

27. The answer is 1, which is choice (1).
28. The answer is  $24/35$ , which is choice (4).
29. The answer is 1206, which is choice (2).
30. The answer is 259, which is choice (1).
31. The answer is 16, which is choice (4).
32. The answer is 1, which is choice (5).

Bonus 1 The answer is  $5/19$ . Try looking at  $5A - A$  and seeing if you can convince yourself that it is  $1 + A/5$ .

Bonus 2 Yes, we want to see the work!