



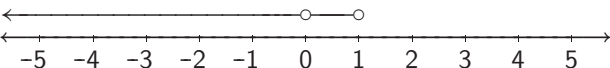
2008 OCTM CONTEST

ANSWER KEY

SCORE: _____

Answers for questions 1–20 must be exact
and in simplest form.

Answers for questions 21–40 may be exact
OR correctly rounded to four decimal places.

1. 209
2. 5005
3. 12 boys
4. circle
5. 258
6. E
7. 2, 3, 5, 13, 89 — any order
8. 20,085,120 gallons
9. 11
10. 10 units
11. ANY equation $y = mx + b$, with $m > 0$ and $b > 0$
12. 252,004 sq. cm (or cm²) — need units
13. $k = -9$
14. 48 units
15. $-\frac{\sqrt{2}}{2} + \frac{\sqrt{2}}{2}i$ or $\frac{\sqrt{2}}{2} - \frac{\sqrt{2}}{2}i$ — need both; $\frac{1}{\sqrt{2}}$ is OK
16. 1004
17. 4 or 5 or 7 — need all three
18. 7
19. $\frac{119}{180}$
20. 
21. 6%
22. A, B, D — need all three
23. $k = 51$
24. 13
25. $AB = \begin{bmatrix} 5 & -6 & -1 \\ -5 & 12 & 17 \end{bmatrix}$ $BA = \text{impossible}$
26. $\frac{1}{360}$ or $\frac{2}{6!}$ or $\frac{1}{3 \cdot 5!}$ or $0.002\bar{7}$ or 0.0028
27. 53.6165 sq. units
28. 2
29. $\frac{2}{3}$ or $0.\bar{6}$ or 0.6667 hours
30. $26\frac{10}{27}$ or $26.\overline{370}$ or 26.3704
31. A and D — need both
32. -21
33. $2^{1/3}$ or $\sqrt[3]{2}$ or 1.2599 — x cannot be 0
34. $\frac{a}{b} = \frac{13}{5}$
35. $\frac{c}{d} = \frac{64}{169}$
36. 6
37. incenter
38. 3946
39. $4x^2 + 2x - 3$
40. 8787 sq. miles