Diagnostic Exam

MATH 1150-020 Precalculus Mathematics

August 20, 2003

Give yourself one hour to take this exam. Do not use a calculator. Then grade it using the answer key available from `http://ucsu.colorado.edu/~almann/math1150`.

1. $\frac{1}{2} + \frac{2}{3}$
2. $\frac{15}{8} \cdot \frac{4}{21}$
3. List the negative integers greater than -6.
4. Use interval notation to describe the set of real numbers less than 2.
5. $(\sqrt{x} - \sqrt{y})(\sqrt{x} + \sqrt{y})$
6. $\left(\dfrac{2c^3d^{-2}}{4b^{-1}d^5}\right)\left(\dfrac{3b^2d}{c}\right)$
7. $\left(\frac{1}{8}\right)^{1/3}$
8. Express 60,220,000,000 in scientific notation.
9. Express 0.000 000 000 12 in scientific notation.
10. $5 - |-4|$
11. Find the distance between the points $\langle -2, 1\rangle$ and $\langle 4, 9\rangle$.
12. Find the midpoint of the line segment connecting the points $\langle 2, 6\rangle$ and $\langle -1, -2\rangle$.
13. Write in standard form the equation of a circle centered at $\langle 17, -26\rangle$ with radius 10.
14. $\frac{1}{3}x + \frac{1}{4} = 2$
15. $\dfrac{-3x - 2}{6} < 4$
16. Solve the following equation for y. $x(y + 3) = y$.
17. What is the slope of a vertical line?
18. Write in slope-intercept form the equation of the line that passes through the points $\langle 0, 2\rangle$ and $\langle 5, 3\rangle$.
19. Write in point-slope form the equation of the line that passes through $\langle 1, 2\rangle$ and is parallel to the line $y = 3x + 27$.
20. Write in point-slope form the equation of the line that passes through $\langle -2, 3\rangle$ and is perpendicular to the line $y = -2x - 10$.