Sample Mathematics Placement Exam - 2010

Lincoln University

(Answers are given at the right. Actual exam is a multiple choice exam)

1. Find the sum $\frac{5}{6} + \frac{2}{9}$ $\frac{19}{18}$

2. Find the difference $\frac{2}{3} - \frac{3}{5}$ $\frac{1}{15}$

3. Find the product $\frac{3}{5}\left(-\frac{2}{9}\right)$ $-\frac{2}{15}$

4. Divide $\frac{1}{12} \div \frac{5}{6}$ $\frac{1}{10}$

5. Evaluate $y^2 - 2x^2$ if $x = -2$ and $y = -3$ 1

6. Solve for t: $5 - 3(2 - t) = t$ $t = ½$

7. Multiply: $(2x - 3)(-x + 7)$ $-2x^2 + 17x - 21$

8. Write the decimal form of the number: 1.28×10^{-4} 0.000128

9. Simplify: $\frac{4\,b^3}{-2\,b^{-2}}$ $-2\,b^5$

10. Write the equation of the line that passes through the point (0, -4) with slope = $\frac{3}{2}$

$y = \frac{3}{2}x - 4$

11. Solve for x: $2 - \frac{x}{3} > \frac{1}{2}$ $x < \frac{9}{2}$

12. Factor the expression: $3y^2 - y - 2$ $(3y+2)(y-1)$

13. Simplify $\sqrt[3]{27\,y^6}$ $3\,y^2$

14. Solve by quadratic formula: $4x^2 - 7x + 2 = 0$ $x = \frac{7 \pm \sqrt{17}}{8}$

15. Solve the system: $2x - 3y = 20$ & $5x + y = -1$ $x = 1$ & $y = -6$

16. Simplify $\frac{2x-4}{x^2-2x}$ $\frac{2}{x}$

17. If $f(x) = 5x$ & $g(x) = x + 4$ find $f \circ g(x)$ $f \circ g(x) = 5x + 20$

18. Solve for y: $|5y - 2| > 3$ $y < -\frac{1}{5}$ or $y > 1$

19. Solve for x: $\text{Log } x - \text{Log } 7 = 1$ $x = 70$

20. Solve for t: $3e^x + 1 = 2.8$ $x = -0.5108$

21. Solve for x: $\sqrt{2x-3} = 4$ $x = \frac{19}{2}$

22. Convert $\frac{3\pi}{8}$ to degree measure 67.5°

23. Simplify: $\sin t \left(\frac{1}{\csc t} + \frac{\cos^2 t}{\sin t}\right)$ $= 1$

24. Solve for α in the interval [0, 360°), $2\cos\alpha = 1$ 60° & 300°

25. An angle in a right triangle is 47°. The length of the side adjacent to the angle is equal to 6.0 inches. Find the length of the hypotenuse. 8.8 inches