SANTA BARBARA CITY COLLEGE

TEST #4 – SAMPLE QUESTIONS

This test will assess your pre-calculus skills for placement into **PRE-CALCULUS II** (Math 138), and **CALCULUS** (Math 150). Eligibility for Math 138 will be based on scores achieved in competency areas 5, 6, and 8 on the 90-minute, 60-item Pre-Calculus Test. Eligibility for Math 150 will be based on scores achieved in all competency areas on the 90-minute, 60-item Pre-Calculus Test.

More extensive study packets are available at the Campus Bookstore.

PLEASE NOTE: CALCULATORS ARE NOT ALLOWED AT ASSESSMENT TESTING. IT IS BEST TO STUDY WITHOUT THE AID OF A CALCULATOR.

1. Elementary operations with numerical and algebraic fractions

$$\frac{3x-2}{x+2}-\frac{2}{x-2}=$$

(A) $\frac{3}{x+2}$ (B) $\frac{3x-4}{x^2-4}$ (C) $\frac{3x}{x^2-4}$ (D) $\frac{x(3x-10)}{x^2-4}$ (E) $\frac{3x(x-4)}{x^2-4x+4}$

2. Operations with exponents and radicals

$\frac{x^{3a+2}}{x^{2a-1}}=$ (A) x^{a+3} (B) x^{a-3} (C) x^{5a-1} (D) x^3

3. Linear equations and inequalities

For what value of t does $\frac{2t-1}{3t+4}=2$?

(A) -6 (B) $-\frac{9}{4}$ (C) $\frac{3}{2}$ (D) $\frac{9}{4}$ (E) There is no value of t satisfying this equation.

4. Polynomials and polynomial equations

If $(x-1)(x^2-4)+2(x-1)(x+2)=(x-1)P$, then $P=$

(A) x^2-2 (B) x^2 (C) $x(x+2)$ (D) x^2+2 (E) $(x+2)^2$

5. Functions

If $f(x)=2x+5$ and $g(x)=1-x^2$, then $f(g(2))=$

(A) -3 (B) -1 (C) 1 (D) 2 (E) 9

6. Trigonometry

If $\sin\theta=\frac{3}{5}$ and $0\le\theta\le\frac{\pi}{2}$, then $\tan\theta=$

(A) $\frac{3}{2}$ (B) $\frac{4}{3}$ (C) $\frac{5}{4}$ (D) $\frac{4}{5}$ (E) $\frac{3}{4}$

7. Logarithmic and exponential functions

$\log_3 27=$ (A) 81 (B) 9 (C) 3 (D) $\frac{1}{3}$ (E) $\frac{1}{9}$

8. Mathematical modeling – word problems

If $\frac{2}{3}$ is $\frac{1}{2}$ of $\frac{4}{5}$ of a certain number, then that number is

(A) $\frac{15}{4}$ (B) $\frac{5}{3}$ (C) $\frac{5}{6}$ (D) $\frac{5}{12}$ (E) $\frac{4}{15}$

ANSWERS: (1) D (2) A (3) B (4) C (5) B (6) E (7) C (8) B