

**PCDT: PreCalculus Diagnostic Test**  
**Placement Test Study Guide**  
MATH 9, 10, 15, 16, 25, 27, 58, 8A, or 1A

**TYPICAL QUESTIONS FROM COMPETENCY AREAS:**

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**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)  $\frac{3x(x-4)}{x^2-4x+4}$

**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)  $x^{a+1}$

(E)  $x^3$

**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

**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)  $(x+2)^2$

**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)  $9$

**Trigonometry**

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

(A)  $\frac{3}{2}$

(B)  $\frac{4}{3}$

(C)  $\frac{5}{4}$

(D)  $\frac{4}{5}$

(E)  $\frac{3}{4}$

**Logarithmic and Exponential Functions**

•  $\log_3 27 =$

(A) 81

(B) 9

(C) 3

(D)  $\frac{1}{3}$

(E)  $\frac{1}{9}$

**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 TO SAMPLE QUESTIONS  
PRECALCULUS DIAGNOSTIC TEST**

**ELEMENTARY OPERATION**

\* (D)

**EXPONENTS/RADICALS**

\* (A)

**LINEAR EQ/INEQUALITIES**

\* (B)

**POLYNOMIALS**

\* (C)

**FUNCTIONS**

\* (B)

**TRIGONOMETRY**

\* (E)

**LOGARITHMS/EXPONENTIAL**

\* (C)

**WORD PROBLEMS**

\* (B)