Note: This test is for students who have had four years of high school math (Algebra I, Geometry, Algebra II, and Precalculus/Math Analysis/Advanced Algebra & Trig.), and who wish to enroll in MATH 201 (Calculus I). Students who would like to enroll in a math class below MATH 201 should take the A - level test, not this test.

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^{a+1} (E) 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. 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) $\frac{4}{15}$

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