Assessment # 4- Precalculus Diagnostic Assessment (Sample problems)

This is a sample of some of the types of problems you will find on the Precalculus assessment given on specific Assessment dates. The actual assessment consists of 40 questions –you will have 60 minutes and will not be allowed to use a calculator. Print this assessment and try the problems, without a calculator, giving yourself about 25 minutes. The answer key is at the end of the example assessment.

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) $\frac{4}{5}$ (B) $\frac{3}{4}$

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