

**TOPICS AND SAMPLE QUESTIONS FROM THE ASSESSMENT TEST FOR  
Math 30 (Calculus)**

**1. Elementary operations with numerical and algebraic fractions**

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

a.  $\frac{3}{x+2}$

b.  $\frac{3x-2}{x^2-4}$

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. no solution

**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  $\sin q = \frac{3}{5}$  and  $0 < q < \frac{\pi}{2}$

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.  $\frac{1}{9}$

ANSWERS: 1. d; 2. a.; 3. b; 4. c; 5. b; 6. e; 7. c.