Pre-Calculus Practice Problems

1. If $x \neq 0$ and $y \neq 0$, then $\frac{2x}{y} \div \frac{6y}{x} =$

   (a) $\frac{1}{3}$ (b) 12 (c) $\frac{1}{3}\left(\frac{x}{y}\right)^2$ (d) none of these

2. If $2x - 5 = 5x + 4$, then $x^2 + x =$

   (a) 6 (b) 15 (c) 21 (d) cannot be determined

3. Evaluate $16^{\frac{3}{4}} =$

   (a) 12 (b) $\sqrt{12}$ (c) 6 (d) 8

4. If $(3 + x)^2 = 9 + ax + x^2$, for all x, then a =

   (a) 3 (b) 0 (c) 6 (d) 12

5. $\frac{\sqrt{48}}{6}$

   (a) 8 (b) $\frac{2\sqrt{3}}{3}$ (c) 4 (d) $\frac{2}{3}$

6. If $x^4 + x^2 + x + 1$ is divided by $x^2 - 1$, the remainder is

   (a) $x - 1$ (b) $x + 3$ (c) $x + 1$ (d) 0

7. If $3x\,[2 - (3 - 5x)] = ax^2 + bx + c$ is true for all values of x, then $a + 2b + 3c =$

(a) -18 (b) -21 (c) 9 (d) cannot be determined

8. Solve: $\frac{5-x}{x} = 9$

(a) $\frac{1}{2}$ (b) 2 (c) $\frac{5}{8}$ (d) -2

9. If $3a^2 - 5ab - 2b^2$ is factored, one of the factors might be:

(a) $a + 2b$ (b) $3a - 2b$ (c) $a - 2b$ (d) $3a - b$

10. Find the real value of x if $\sqrt{4x^2 + 9 = 2}$

(a) $\frac{1}{2}$ (b) $-\frac{1}{2}$ (c) $\frac{\sqrt{5}}{2}$ (d) none of these

11. $\frac{3}{2+\sqrt{5}} =$

(a) $3\sqrt{5} - 6$ (b) $-2 + \sqrt{5}$ (c) $\frac{3}{2} + \frac{3\sqrt{5}}{5}$ (d) none of these

12. $(\frac{x^2}{y^4z^3})^5 =$

(a) $\frac{x^7}{y^4z^3}$ (b) $\frac{x^7}{y^9z^8}$ (c) $x^{10}\,y^{-20}\,z^{-15}$ (d) none of these