

**ALGEBRA II SOL PRACTICE TEST**  
**STRAND 1: Expressions and Operations**

1. Identify which expression is the simplest form of the following :  $\frac{\frac{y-1}{3}+1}{\frac{y-1}{3}-\frac{y}{2}}$

- A)  $-\frac{2}{y}$                       B)  $-2$                       C)  $-\left(\frac{y+2}{3}\right)$                       D)  $\frac{2(y+2)}{5y-2}$

2. Write the following expression in simplest form:  $(8x^{15}y^{-9})^{-\frac{1}{3}}$

- A)  $\frac{8y^3}{x^5}$                       B)  $\frac{2x^5}{y^3}$                       C)  $\frac{y^3}{8x^5}$                       D)  $\frac{y^3}{2x^5}$

3. If  $xy \neq 0$ , write the following expression without negative exponents:  $\frac{(x\sqrt[3]{y})^{-2}}{x^{-1}y}$

- A)  $\frac{1}{x\sqrt[5]{y^3}}$                       B)  $\frac{x}{\sqrt[5]{y^3}}$                       C)  $\frac{1}{xy\sqrt[3]{y^2}}$                       D)  $\frac{x}{y\sqrt[3]{y^2}}$

4. What value of  $n$  satisfies the following equation:  $\sqrt{48} + \sqrt{27} = \sqrt{48+27} + \sqrt{n}$

n =

5. When factored completely,  $12x^2 - 30x - 4xy + 10y =$

- A)  $2(3x - y)(2x - 5)$                       B)  $(6x - 2y)(2x - 5)$   
 C)  $2(6x^2 - 15x - 2xy + 5y)$                       D)  $(6x - 5)(2x - 2y)$

6. Identify the factors of the expression  $6x^2 - 13x - 5$ .

Directions: Circle the box of each expression you want to select. You must select all correct expressions.

$(3x - 1)$	$(2x - 1)$
$(6x - 5)$	$(2x - 5)$
$(2x + 1)$	$(3x + 1)$
$(3x - 5)$	$(2x + 5)$

7. When factored completely what is one of the factors of  $4x^3 - 36x =$

- A)  $x^2 - 9$       B)  $2x + 6$       C)  $x - 3$       D)  $4x^2$

8. Identify each expression that cannot be factored into the product of lower degree terms over the set of integers.

Directions: Circle the box of each expression you want to select. You must select all correct expressions.

- $x^2 + 4x + 16$
- $9x^2 + 30xy + 25y^2$
- $8x^3 + 27y^3$
- $x^2 + 25$
- $x^3 - 2x^2 + 3x - 6$

9. Justify each step in simplifying the expression.

$(-7 + 3i) - (-1 + 7i)$	Given
$-7 + 3i + 1 - 7i$	
$-7 + 1 + 3i - 7i$	
$(-7 + 1) + (3i - 7i)$	
$-6 - 4i$	

- Definition of Addition
- Definition of Multiplication
- Associative Property
- Commutative Property
- Distributive Property

10. When simplified, which number sets include  $(3+2i)(3-2i)$ ?

Directions: Circle the box of each expression you want to select. You must select all correct expressions.

- |                  |                   |
|------------------|-------------------|
| <i>Complex</i>   | <i>Irrational</i> |
| <i>Imaginary</i> | <i>Integer</i>    |
| <i>Real</i>      | <i>Whole</i>      |
| <i>Rational</i>  | <i>Natural</i>    |

11. Write the expression as a complex number in standard form.

$$\frac{3 - 8i}{4 + 2i}$$

- A)  $-\frac{1}{5} - \frac{19}{10}i$       B)  $\frac{7}{5} - \frac{19}{10}i$       C)  $\frac{7}{5} - \frac{13}{10}i$       D)  $-\frac{1}{5} - \frac{13}{10}i$

12. What are the solutions of  $-4x^2 - 72 = 0$ ?

- A)  $\pm 2i\sqrt{3}$       B)  $\pm 3i\sqrt{2}$       C)  $\pm 2\sqrt{3}$       D)  $\pm 3\sqrt{2}$

13. Simplify the expression:  $\frac{12 - 5i}{3 + i}$