

Name \_\_\_\_\_ DUE DATE: \_\_\_\_\_

**Directions:**

- Read each problem carefully and use your knowledge of mathematics to determine your answer.
- In order to receive FULL CREDIT you must either SHOW ALL WORK or EXPLAIN how you got your answer!! PLEASE NOTE: A multiple choice answer alone without any work will only receive half credit.

Question	Your Work/Explanation
<p>1) Simplify: <math>\left(\frac{3x^{-1/2}y^{3/5}}{z^{-2/3}}\right)^2</math></p> <p>(a) <math>\frac{6y^{6/5}z^{4/3}}{x}</math>      (b) <math>\frac{9x^{1/4}y^{9/25}}{z^{4/9}}</math></p> <p>(c) <math>\frac{3y^{6/5}z^{4/3}}{z}</math>      (d) <math>\frac{9y^{6/5}z^{4/3}}{x}</math></p>	
<p>2) Multiply: <math>(x - 2\sqrt{3})(x + 2\sqrt{3})</math></p> <p>(a) <math>x^2 - 12</math>      (b) <math>x^2 - 36</math></p> <p>(c) <math>x^2 - 6</math>      (d) <math>x^2 - 4\sqrt{3}</math></p>	
<p>3) Factor:</p> $7(3x + 2)^2(1 - x)^2 + (3x + 2)(1 - x)^3$	

4) Expand: $(3 + 2y)^3$  (a) $9 + 6y^3$ (b) $27 + 8y^3$ (c) $27 + 54y + 36y^2 + 8y^3$ (d) $27 + 18y + 12y^2 + 8y^3$	
5) Factor completely: $70x^2 + 18x - 4$	
6) Simplify: $(4x^{-\frac{1}{2}})^2(3xy^{\frac{2}{3}})^3$  (a) $432x^2y^2$ (b) $216y^{8/27}$ (c) $432y^2$ (d) $216y^2$	
7) Factor: $18x^4 - 2(y - 3)^2$	

8) Add:  $\frac{2}{x^2 - 9} + \frac{5}{x^2 - x - 12}$

(a)  $\frac{7}{(x^2-9)(x^2-x-12)}$       (b)  $\frac{7x^2-x-21}{(x^2-9)(x^2-x-12)}$

(c)  $\frac{7x-7}{(x-3)(x-4)(x+3)}$       (d)  $\frac{7x-23}{(x-3)(x+3)(x-4)}$

9) Simplify:  $\frac{(3x^{-2}y^3)(5xy^{-8})}{(x^3)^4 \cdot y^{-2}}$

10) Simplfy:  $\frac{\frac{2}{x+1} - \frac{x}{x+2}}{\frac{1}{x+1}}$

11) Divide using long division:

$$2x^4 + 4x^3 - 5x^2 + 3x - 2 \text{ by } x^2 + 2x - 3$$

12) Simplify:

$$2x(x - 4) - (3 - x)^2 - 5(x - 1)(x + 7)$$

