

Name _____

Group Members:

1. Solve:

(a) $-2x + 9 - 5x = 3(x - 4) - 5$

(b) $-3x + 2 \leq 6$

(c) $3 + |2x + 5| = 5$

(d) $-3 - |x + 3| \geq -11$

2. Simplify

(a) $\sqrt[3]{\frac{x^0 y^4}{3z^3}} \cdot \sqrt[3]{81x^9 y^{-10} z^6}$

(b) $3\sqrt{40} + \sqrt{250}$

(c) $\sqrt[3]{\sqrt[5]{x}}$

(d) $3^{-1} \cdot (2^{\frac{1}{2}} + 2^{\frac{3}{2}})^2$

(e) $\frac{16^{\frac{3}{4}} + 9^{-\frac{1}{2}}}{16^{\frac{3}{4}} - 9^{-\frac{1}{2}}}$

3. Simplify. Assume x may be negative and $a > 0$.

(a) $\sqrt{100x^4}$

(b) $\sqrt[3]{\frac{x^3}{27}}$

(c) $\sqrt[4]{a}\sqrt[4]{a^3}$

4. Rationalize the denominator

(a) $\frac{5}{3\sqrt{2}}$

(b) $\frac{4}{3 - \sqrt{5}}$

5. Compute the product and combine like terms

(a) $(x - y)^2$

(b) $(x + y)(x - y)$

(c) $(x - y)(x^2 + xy + y^2)$

(d) $(3x - 1)(x + 2) + 7x(x + 1)$

6. Factor

(a) $7x^2 + 10x - 8$

(b) $x^2 - 6x + 9$

(c) $27a^3 - 64b^3$

(d) $2(6x - 5)^3(x^2 + 4)(2x) + 6(x^2 + 4)^2(6x - 5)^2$

7. Simplify completely

(a) $\frac{y + 2}{y^2 - 6y + 8} + \frac{3y - 8}{y^2 - 5y + 6}$

(b) $\frac{\frac{2}{x+4}}{\frac{x+3}{x^2-16}}$

(c) $\frac{\frac{1}{(x+h)^2} - \frac{1}{x^2}}{h}$

8. (a) Express $\frac{(\sqrt{x} - 3)^2}{x^3}$ as a sum of terms of the form ax^r .

(b) Express $x^{-2/3} + 5x^{7/3}$ as a quotient.