

MATH 190 REVIEW FOR TEST #2

Instructions:

- (1) No calculators!
- (2) All answers must be fully reduced/simplified!
- (3) Each problem is worth 10 points. So show ALL your work for full credit.

1. Simplify: $\frac{(x^{-3}y^{1/2})^4}{(x^{1/3}y^{2/3})^2}$
2. Simplify: $\frac{(27a^3b^6)^{1/3}}{(81a^8b^{-4})^{1/4}}$
3. Multiply: $(5y^{1/3} - 2)(4y^{1/3} + 3)$
4. Multiply: $(a^{1/3} + 3)(a^{2/3} - 3a^{1/3} + 9)$
5. Write as a single number: $(\sqrt[3]{2} + \sqrt[3]{3})(\sqrt[3]{4} - \sqrt[3]{6} + \sqrt[3]{9})$
6. Rewrite the expression without parentheses: $(5x^{1/2} + 4y^{1/2})^2$
7. Factorize: $4x^2(x + 1)^{1/2} + 8x(x + 1)^{3/2}$
8. Factorize: $6(x + 3)^{15/7} - 12(x + 3)^{8/7}$
9. Rationalize the denominator and simplify: $\frac{\sqrt{x + 3} + \sqrt{x - 3}}{\sqrt{x + 3} - \sqrt{x - 3}}$
10. Simplify: $\sqrt[5]{64x^8y^4z^{11}}$
11. Simplify: $b\sqrt[3]{24a^5b} + 3a\sqrt[3]{81a^2b^4}$
12. Simplify: $\sqrt{x^4 - 10x^3 + 25x^2}$ (assume $x \geq 5$).
13. Rewrite $\frac{14}{\sqrt{9} + \sqrt{2}}$ as an expression that doesn't involve fractions.
14. Solve the equation: $\sqrt{x + 4} = 2 - \sqrt{2x}$
15. Find the equation of the straight line through points $(-1, -1)$ and $(1, 9)$
16. Find the equation of the line through $(-1, -2)$ that is perpendicular to $2x + 5y + 8 = 0$
17. Find the equation of the line through $(1, 7)$ that is parallel to the line through $(2, 5)$ and $(-2, 1)$.