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Unit 3 TEST REVIEW Math II

1-4. Simplify the expressions

1. $\left(\frac{-4s^6}{t^3r^5}\right)^3 =$
2. $\left(14a^4b^6\right)^2\left(a^6c^3\right)^7 =$
3. $\frac{-20xy^8}{3x^{-4}y^2}\cdot\frac{-5x^{-3}y^5}{(-2y)^3}$
4. $\left(\frac{4x^{-3}y^2}{6xy^{-3}}\right)^{-2}\cdot\frac{y^4}{x^6y^{-5}}$

5-7 Rationalize the exponents. Write your answers in radical form.

5. $\frac{\boldsymbol{a^{\frac{9}{7}}}}{\boldsymbol{a^{\frac{4}{7}}}}$
6. $\boldsymbol{\sqrt[4]{16x^8}}$
7. $\boldsymbol{\left(-3y^{\frac{1}{3}}\right)^3}$

8-10. Rationalize the denominator.

8. $\boldsymbol{\frac{4}{\sqrt[3]{9x^2y^8}}}$
9. $\boldsymbol{\frac{2\sqrt{3}}{\sqrt{6}-\sqrt{2}}}$
10. $\boldsymbol{\frac{5\sqrt{3}+2\sqrt{6}}{2\sqrt{11}-3\sqrt{6}}}$

11-12 simplify radicals

11. $\sqrt{8x^7y^{16}z}$
12. $2a^2b^5c\sqrt{45ab^5c^9}$

13- 16 ADD, SUBTRACT AND MULTIPLY THE RADICAL EXPRESSION

13. $(2+2\sqrt{3})(5-\sqrt{3})$

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14. $\left(4\sqrt{5}+3\sqrt{3}\right)\left(3\sqrt{5}-4\sqrt{3}\right)$
15. $\sqrt{3}\left(2\sqrt{5}-3\sqrt{2}\right)$
16. $10\sqrt{63}-2\sqrt{28}+\sqrt{7}$

17-19 solve the radical equations

17. $2\sqrt{2x-1}-4=-24$
18. $\sqrt[3]{3x-5}=\sqrt[3]{5x+2}$
19. $\sqrt{3x+10}=5-2x$

Use the following table to answer questions 20- 22.

X	Y
15	2
10	3
5	6
3	10

20. Does this show an inverse variation/proportion relationship? Explain why or why not.
21. What is the constant (k)?
22. What is the equation for this table?

23. If I am looking at an inverse relation, if y increases what happens to x? Explain what happens to y as x decreases.

24. The time it takes to fly from Los Angeles to New York varies inversely as the speed of the plane. If the trip takes 6 hours at 900 km/h, how long would it take at 800 km/h?

25. The power, *P*, in watts of an electrical circuit varies jointly as the resistance, *R*, and the square of the current, *C*. For a 240-watt refrigerator that draws a current of 2 amperes, the resistance is 60 ohms. What is the resistance of a 600-watt microwave oven that draws a current of 5 amperes?

26. The force needed to keep a car from skidding on a curve varies directly as the weight of the car and the square of the speed and inversely as the radius of the curve. Suppose a 3,960 lb. force is required to keep a 2,200 lb. car traveling at 30 mph from skidding on a curve of radius 500 ft. How much force is required to keep a 3,000 lb. car traveling at 45 mph from skidding on a curve of radius 400 ft.?