

Name _____

5-3 Lesson Master

Questions on SPUR Objectives

See Student Edition pages 339–343 for objectives.

SKILLS Objectives A and B

In 1–4, write the product or quotient as a single rational expression in lowest terms.

1. $\frac{(x+1)(2x+1)(3x+1)}{(4x+1)(5x+1)} \cdot \frac{x(4x+1)}{(3x+1)(x+1)}$ _____

2. $\frac{(p^3+4)(2p-3)}{(p-1)(p-2)} \div \frac{9p(p^3+4)}{p^2-3p+2}$ _____

3. $\frac{y^2-9}{y(y+5)} \cdot \frac{y^2(y-2)}{y^2+y-6}$ _____

4. $\frac{c^2+8c+16}{c+1} \div \frac{3c^2+10c-8}{6c^2-c-2}$ _____

In 5–7, rationalize the numerator.

5. $\frac{\sqrt{6}+2}{7}$ _____

6. $\frac{3-\sqrt{3}}{12}$ _____

7. $\frac{\sqrt{7}+2\sqrt{2}}{\sqrt{5}}$ _____

In 8–10, rationalize the denominator.

8. $\frac{-10}{\sqrt{2}+1}$ _____

9. $\frac{\sqrt{12}}{1-2\sqrt{3}}$ _____

10. $\frac{9}{2\sqrt{2}-3\sqrt{3}}$ _____

USES Objective K

11. Mrs. Cooke is baking cookies to sell as a fundraiser for her choir. She plans to sell them for 50 cents each. She bakes c cookies, and sells all but 3 of them, which she gave for free to the students who volunteered to sell the cookies. Write a rational expression for the average amount of money Mrs. Cooke collected per cookie that she baked. Be sure to include a unit with your expression.
- _____

12. The letter Z is usually used to denote the impedance of a circuit, or the circuit's resistance to current. When two circuits with impedances Z_1 and Z_2 are connected in series, the total impedance of the combined circuit is $Z_1 + Z_2$. When the same two circuits are connected in parallel, the total impedance of the combined circuit is $\frac{Z_1 Z_2}{Z_1 + Z_2}$. Find a simplified expression for the ratio of the impedance of a series circuit to the impedance of a parallel circuit.
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