

Chapter 6 Review

NAME _____

Class Time _____

To simplify, remember: If there is any addition or subtraction that you will need to try to factor before reducing.

1. $\frac{18r^3}{6r}$

2. $\frac{2x^2 - 3x - 5}{2x^2 - 7x + 5}$

3. $\frac{m^2 - 1}{1 - m}$

To multiply, remember: (1) Try to factor. (2) Try to reduce. (3) Multiply.

1. $\frac{10m^2}{7} \cdot \frac{14}{15m}$

2. $\frac{4(y-2)}{x} \cdot \frac{3x}{6(y-2)^2}$

3. $\frac{5-x}{5+x} \cdot \frac{x+5}{x-5}$

To divide, remember: (1) Multiply by the reciprocal of the second fraction. (2) Try to factor. (3) Try to reduce. (4) Multiply.

1. $\frac{9z^4}{3z^5} \div \frac{3z^2}{5z^3}$

2. $\frac{4m+16}{10} \div \frac{3m+12}{18}$

3. $\frac{2-t}{8} \div \frac{t-2}{6}$

4. $\frac{p^2 + 4p - 5}{p + 7p + 10} \div \frac{p^2 - 7p + 6}{p^2 - 10p + 24}$

5. $\frac{2m+3}{m^2 - 10m + 24} \div \frac{4m^2 - 9}{2m - 12}$

To add, remember: (1) *Add the numerators and keep the common denominator.*
(2) *Try to factor numerator and denominator.*
(3) *Reduce if possible. This is done last on addition and subtraction.*

1. $\frac{7}{x^2} + \frac{2}{x^2}$

2. $\frac{5}{x+2} + \frac{7}{x+2}$

3. $\frac{9x+8}{x+1} + \frac{2x+3}{x+1}$

4. $\frac{x^2}{x+5} + \frac{9x+20}{x+5}$

To subtract, remember: (1) *Add the opposite of the second numerator keeping the denominator.*
(2) *Try to factor numerator and denominator.*
(3) *Reduce if possible.*

1. $\frac{6+4x}{5x} - \frac{3x+1}{5x}$

2. $\frac{5x+3}{x+2} - \frac{3x-1}{x+2}$

3. $\frac{3x^2+6}{x^2+9x+14} - \frac{2x^2-8x-1}{x^2+9x+14}$

4. $\frac{x^2-2x}{x^2-3x-18} - \frac{3x+6}{x^2-3x-18}$

Simplify the following radical expressions.

1. $\sqrt{20x^7y^{10}}$

2. $\sqrt{81x}$

3. $\sqrt{\frac{9}{25}}$

4. $\sqrt{\frac{5}{16}}$

5. $\sqrt{\frac{3}{7}}$

6. $\frac{2}{\sqrt{x}}$

$$7. 8\sqrt{7} - \sqrt{7}$$

$$8. 3\sqrt{5} - 4\sqrt{3} + 3\sqrt{3} - 7\sqrt{5}$$

$$9. \sqrt{45} - \sqrt{20}$$

$$10. 5\sqrt{18} + 7\sqrt{8}$$

$$11. \sqrt{75x^3} + \sqrt{12x^3}$$

$$12. \sqrt{2}(6 + \sqrt{6})$$

$$13. 2\sqrt{5}(3\sqrt{2} - 7)$$

$$14. (\sqrt{x} + 3)(\sqrt{x} + 5)$$

$$15. (5 + 3\sqrt{7})^2$$

$$16. (\sqrt{10} - 3)(\sqrt{10} + 3)$$

Answers: SIMPLIFYING: 1. $3r^2$ 2. $\frac{x+1}{x-1}$ 3. $-(m+1) = -m-1$

MULTIPLYING: 1. $\frac{4m}{3}$ 2. $\frac{2}{y-2}$ 3. -1

DIVIDING: 1. 5 2. $\frac{12}{5}$ 3. $\frac{-3}{4}$ 4. $\frac{p-4}{p+2}$ 5. $\frac{2}{(m-4)(2m-3)}$

ADDING: 1. $\frac{9}{x^2}$ 2. $\frac{12}{x+2}$ 3. 11 4. $x+4$

SUBTRACTING: 1. $\frac{x+5}{5x}$ 2. 2 3. $\frac{x+1}{x+2}$ 4. $\frac{x+1}{x+3}$

SIMPLIFYING RADICAL EXPRESSIONS -

1. $2x^3y^5\sqrt{5x}$
2. $9\sqrt{x}$
3. $\frac{3}{5}$
4. $\frac{\sqrt{5}}{4}$
5. $\frac{\sqrt{21}}{7}$
6. $\frac{2\sqrt{x}}{x}$
7. $7\sqrt{7}$
8. $-4\sqrt{5} - \sqrt{3}$
9. $\sqrt{5}$
10. $29\sqrt{2}$
11. $7x\sqrt{3x}$
12. $6\sqrt{2} + 2\sqrt{3}$
13. $6\sqrt{10} - 14\sqrt{5}$
14. $x + 8\sqrt{x} + 15$
15. $88 + 30\sqrt{7}$
16. 1