# Agenda

## 1) Go over HW Questions
- Groups
- On board

## 2)Examples 1-3
5.5: Objective: To Multiply and Divide Rational Expressions

## 3)Levels 1-2 Practice Worksheets

*HW: p. 234 #1, 5, 7, 9, 11, 15, 19*

# 5.5: Products and Quotients of Rational Expressions
## Objective: To Multiply and Divide Rational Expressions

| | |
|---|---|
| 1) Simplify: $\dfrac{14}{15} \div \dfrac{7}{5}$ | Steps: |
| 2) Simplify: $\dfrac{6p^2q}{r} \div \dfrac{3pq^2}{r} \cdot \dfrac{2q^2}{pr}$ | Steps: |

# 5.5: Products and Quotients of Rational Expressions
## Objective: To Multiply and Divide Rational Expressions

| | Steps: |
|---|---|
| 1) Simplify: $\dfrac{14}{15} \div \dfrac{7}{5}$ | a) *Multiply the original fraction by the reciprocal of the second fraction* |
| $\dfrac{14}{15} \cdot \dfrac{5}{7}$ | |
| $\dfrac{14}{15} \cdot \dfrac{5}{7}$ | b) *Divide out factors common to both numerator and denominator* |
| $\dfrac{2}{3} \cdot \dfrac{1}{1}$ | c) *Rewrite fraction. Multiply numerator by numerator. Multiply denominator by denominator.* |
| $= \dfrac{2}{3}$ | d) *Express final answer as one fraction.* |
| 2) Simplify: $\dfrac{6p^2q}{r} \div \dfrac{3pq^2}{r} \cdot \dfrac{2q^2}{pr}$ | Steps: |
| $\dfrac{6p^2q}{r} \cdot \dfrac{r}{3pq^2} \cdot \dfrac{2q^2}{pr}$ | a) *Multiply the original fractions by the reciprocal of the second fraction* |
| $\dfrac{6p^2q}{r} \cdot \dfrac{r}{3pq^2} \cdot \dfrac{2q^2}{pr}$ | b) *Divide out factors common to both numerators and denominators* |
| $\dfrac{2pq}{1} \cdot \dfrac{1}{1} \cdot \dfrac{2}{pr}$ | c) *Rewrite fraction. Divide out factors common to both numerators and denominators* |
| $= \dfrac{4q}{r}$ | d) *Multiply numerators by numerators. Multiply denominators by denominators. Express final answer as one fraction.* |

**3**

| 3) Simplify: $$\dfrac{\frac{a^2-4a+3}{a+2}}{a^2-a-6}$$ | Steps: |
| --- | --- |
| | |

| 3) Simplify: | Steps: |
|---|---|
| $$\dfrac{\dfrac{a^2-4a+3}{a+2}}{a^2-a-6}$$ | |
| $$\frac{a^2-4a+3}{a+2} \div \frac{a^2-a-6}{1}$$ | a) *Rewrite fractions to line up numerators and denominators.* |
| $$\frac{a^2-4a+3}{a+2} \cdot \frac{1}{a^2-a-6}$$ | b) *Multiply the original fractions by the reciprocal of the second fraction* |
| $$\frac{(a-3)(a-1)}{a+2} \cdot \frac{1}{(a-3)(a+2)}$$ | c) *Factor any polynomials that can be factored* |
| $$\frac{(a-1)}{a+2} \cdot \frac{1}{(a+2)}$$ | d) *Divide out factors common to both numerators and denominators* |
| $$\frac{(a-1)}{(a+2)^2}$$ | e) *Express final answer as one fraction.* |

# Practice: Level 1

Kuta Software - Infinite Algebra 1

**Simplify each expression.**

1) $\dfrac{59n}{99} \cdot \dfrac{80}{33n}$

2) $\dfrac{16n}{17} \div \dfrac{8n}{6}$

3) $\dfrac{93}{21n} \cdot \dfrac{34n}{51n}$

4) $\dfrac{12}{7} \div \dfrac{4}{11r}$

5) $\dfrac{96}{38n} \cdot \dfrac{25}{45}$

6) $\dfrac{5}{20} \div \dfrac{5x}{3}$

7) $\dfrac{6(r+2)}{20} \cdot \dfrac{4r}{6(r+2)}$

8) $\dfrac{3}{28b} \div \dfrac{3}{b+1}$

# Practice: Level 2

Kuta Software - Infinite Algebra 1

**Simplify each expression.**

11) $\dfrac{8(m+1)}{7m} \cdot \dfrac{9}{8(m+1)}$

12) $\dfrac{(p+6)(p-4)}{p-4} \cdot \dfrac{1}{(p-4)(p-2)}$

13) $\dfrac{1}{v+10} \cdot \dfrac{10v+30}{v+3}$

14) $\dfrac{7n}{24n^3-64n^2} \cdot \dfrac{9n-24}{7n}$

9) $\dfrac{7a^2}{7a^3+56a^2} \div \dfrac{2}{a^2+7a-8}$

10) $\dfrac{6}{28x+4} \div \dfrac{6}{35x+5}$

*HW: p. 234 #1, 5, 7, 9, 11, 15, 19*

# Practice: Level 1

Kuta Software - Infinite Algebra 1

**Simplify each expression.**

1) $\dfrac{59n}{99} \cdot \dfrac{80}{33n}$

$\dfrac{4720}{3267}$

2) $\dfrac{16n}{17} \div \dfrac{8n}{6}$

$\dfrac{12}{17}$

3) $\dfrac{93}{21n} \cdot \dfrac{34n}{51n}$

$\dfrac{62}{21n}$

4) $\dfrac{12}{7} \div \dfrac{4}{11r}$

$\dfrac{33r}{7}$

5) $\dfrac{96}{38n} \cdot \dfrac{25}{45}$

$\dfrac{80}{57n}$

6) $\dfrac{5}{20} \div \dfrac{5x}{3}$

$\dfrac{3}{20x}$

7) $\dfrac{6(r+2)}{20} \cdot \dfrac{4r}{6(r+2)}$

$\dfrac{r}{5}$

8) $\dfrac{3}{28b} \div \dfrac{3}{b+1}$

$\dfrac{b+1}{28b}$

# Practice: Level 2

Kuta Software - Infinite Algebra 1

**Simplify each expression.**

11) $\dfrac{8(m+1)}{7m} \cdot \dfrac{9}{8(m+1)}$

$\dfrac{9}{7m}$

12) $\dfrac{(p+6)(p-4)}{p-4} \cdot \dfrac{1}{(p-4)(p-2)}$

$\dfrac{p+6}{(p-4)(p-2)}$

13) $\dfrac{1}{v+10} \cdot \dfrac{10v+30}{v+3}$

$\dfrac{10}{v+10}$

14) $\dfrac{7n}{24n^3 - 64n^2} \cdot \dfrac{9n-24}{7n}$

$\dfrac{3}{8n^2}$

9) $\dfrac{7a^2}{7a^3 + 56a^2} \div \dfrac{2}{a^2 + 7a - 8}$

$\dfrac{a-1}{2}$

10) $\dfrac{6}{28x+4} \div \dfrac{6}{35x+5}$

$\dfrac{5}{4}$

## *HW: p. 234 #1, 5, 7, 9, 11, 15, 19*