

Name Key

Date _____ Pd _____

7.1 Rational Functions DAY FOUR CYU

- Use when you get it right all by yourself
- S* Use when you did it all by yourself, but made a silly mistake
- H* Use when you could do it alone with a little help from teacher or peer
- G* Use when you completed the problem in a group
- X* Use when a question was attempted but wrong (get help)
- N* Use when a question was not even attempted

CONCEPTS	BASIC	INTERMEDIATE	ADVANCED
Simplifying rational expression	1, 2	3, 4	5, 6
Greatest common factor	1, 6		
Factoring trinomials	2	3, 4	5, 6
Restricting domain in interval notation	1, 3 - 6	2	
Factoring by grouping		7, 8	
Real-world application			

Simplify each expression. Then restrict the domain in interval notation.

1. $\frac{3}{9x+6} = \frac{\cancel{3}}{\cancel{3}(3x+2)} = \frac{1}{3x+2}$

$3x+2=0$
 $3x=-2$
 $x=-\frac{2}{3}$

$D: (-\infty, -\frac{2}{3}) \cup (-\frac{2}{3}, \infty)$

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

$D: (-\infty, 3) \cup (3, \infty)$

3. $\frac{5x^2+11x+2}{x+2} = 5x+1$

$D: (-\infty, -2) \cup (-2, \infty)$

4. $\frac{12x^2+4x-1}{2x+1} = 6x-1$

$D: (-\infty, -\frac{1}{2}) \cup (-\frac{1}{2}, \infty)$

5. $\frac{49-x^2}{x-7} = \frac{-x^2+49}{x-7}$

$\frac{-(x^2-49)}{x-7} = \frac{-(x-7)(x+7)}{\cancel{x-7}}$

$-(x+7)$ or $-x-7$

$D: (-\infty, 7) \cup (7, \infty)$

6. $\frac{2x^2-8}{4x-8} = \frac{x+2}{2}$

$D: (-\infty, 2) \cup (2, \infty)$

Simplify the expression. Show all work for full credit.

7. $\frac{2xy+5x-2y-5}{3xy+4x-3y-4}$

$$\frac{2y+5}{3y+4}$$

8. $\frac{2xy+2x-3y-3}{2xy+4x-3y-6}$

$$\frac{y+1}{y+2}$$

Solve the following real-world problems. Show work to earn full credit and include units in your final answer.

8. Anthropologists and forensic scientists use a measure called the cephalic index to help classify skulls. The cephalic index of a skull with width W and length L from front to back is given by the formula $C = \frac{100W}{L}$.

A long skull has an index value less than 75, a medium skull has an index value between 75 and 85, and a broad skull has an index value over 85. Find the cephalic index of a skull that is 5 inches wide and 6.4 inches long. Classify the skull. Then state a reasonable domain.

$$C \approx 78.125; \text{medium} \quad D: (0, 100)$$

9. A company's gross profit margin P can be computed with the formula $P = \frac{R-C}{R}$, where R = the company's revenue and C = cost of goods sold. During a recent fiscal year, computer company Apple had revenues of \$32.5 billion and cost of goods sold \$21.5 billion. What was Apple's gross profit margin in this year? Express the answer as a percent, rounded to the nearest tenth of a percent.

$$34.5\%$$

10. A baseball player's slugging average S can be calculated with the following formula: $S = \frac{h+d+2t+3r}{b}$, where h = number of hits, d = number of doubles, t = number of triples, r = number of home runs, and b = number of at bats. In 2014, Jose Abreu of the Chicago White Sox led Major League Baseball in slugging average. During the 2014 season, Abreu had 556 at bats, 176 hits, 35 doubles, 2 triples, and 36 home runs. Calculate Abreu's slugging average. Round to three decimal places.

$$0.581$$

CYU Reflection: How far can you go: basic, intermediate, or advanced?

Rate your mastery level!

How confident are you with the skills this CYU covered? Circle the score you would give yourself.

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1	2	3	4	5	6	7	8
Basic		Intermediate			Advanced		Solved ALL!