

Name	Period	Date
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**READY**

Topic: Doing arithmetic with rational numbers

Perform the indicated operation. Be thoughtful about each step you perform in the procedure. Show your work.

1.  $\frac{5}{17} + \frac{8}{17} = \frac{13}{17}$

2.  $\frac{3}{10} + \frac{16}{25} = \frac{15}{50} + \frac{32}{50} = \frac{47}{50}$

3.  $\frac{4}{5} + \frac{7}{11} = \frac{44}{55} + \frac{35}{55} = \frac{79}{55}$

4.  $(\frac{2}{3}) \cdot (\frac{4}{5}) = \frac{8}{15}$

5.  $(\frac{2}{3}) \cdot (\frac{9}{16}) = \frac{18}{48} = \frac{3}{8}$   
 or  $\frac{2}{3} \cdot \frac{9^3}{16^3} = \frac{3}{8}$

6.  $(\frac{10}{33}) \cdot (\frac{11}{15}) = \frac{110}{495} = \frac{2}{9}$   
 or  $\frac{10}{33} \cdot \frac{11}{15} = \frac{2}{9}$

7. Explain the procedure for adding two fractions.

a. When the denominators are the same:

- Add the numerators, keep the denominator the same (✓ to see if you can reduce the sum)

b. When the denominators are different:

- Determine the least common denominator
- Change the numerators (mult. by same factor as denom. was mult. by)
- Add the numerators, keep the denominator the same (✓ to see if you can reduce the sum)

8. Explain the procedure for multiplying two fractions.

Method 1: Multiply straight across (num. x num., denom. x denom.)  
 • Reduce the product

or Method 2: Reduce any numerator with any denominator  
 • Multiply reduced fractions straight across

9. When multiplying two fractions, is it better to reduce before you multiply or after you multiply?

Explain your reasoning.

- If you reduce before you multiply, then you get to deal with smaller values (∴ easier)
- But you will get the same product either way

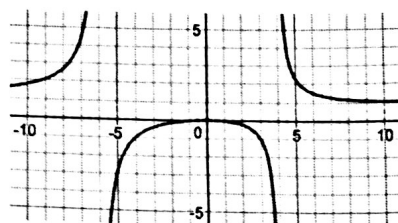
**SET**

Topic: Identifying key features of a rational function

Fill in the specified features of each rational function. Sketch the asymptotes on the graph and mark the location of the intercepts.

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10.  $y = \frac{x^2}{(x+6)(x-4)}$



Degree of num. 2 Degree of denom. 2

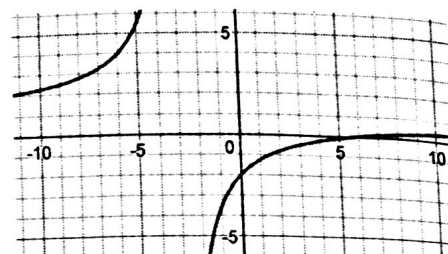
Equation of horizontal asymptote:  $y = 1$

Equation of vertical asymptote(s):  $x = -6, x = 4$

y- intercept: (write as a point)  $(0, 0)$

x- intercept(s): (write as points)  $(0, 0)$

11.  $y = \frac{(x-6)}{x+3}$



Degree of num. 1 Degree of denom. 1

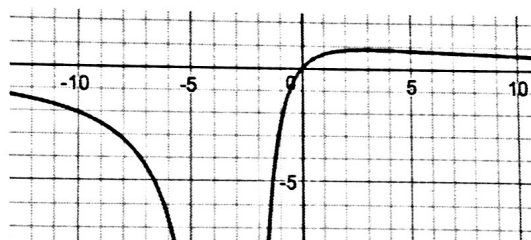
Equation of horizontal asymptote:  $y = 1$

Equation of vertical asymptote(s):  $x = -3$

y- intercept: (write as a point)  $(0, -2)$

x- intercept(s): (write as points)  $(6, 0)$

12.  $y = \frac{10x}{(x+3)^2}$



Degree of num. 1 Degree of denom. 2

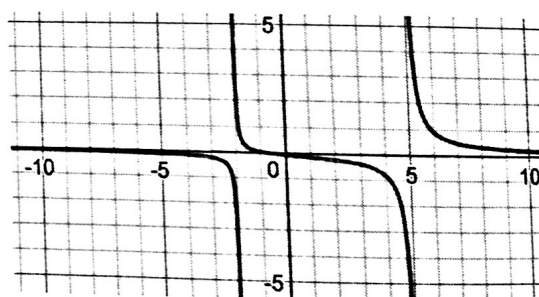
Equation of horizontal asymptote:  $y = 0$

Equation of vertical asymptote(s):  $x = -3$

y- intercept: (write as a point)  $(0, 0)$

x- intercept(s): (write as points)  $(0, 0)$

13.  $y = \frac{(x+1)}{(x+2)(x-5)}$



Degree of num. 1 Degree of denom. 2

Equation of horizontal asymptote:  $y = 0$

Equation of vertical asymptote(s):  $x = -2, x = 5$

y- intercept: (write as a point)  $(0, -\frac{1}{10})$

x- intercept(s): (write as points)  $(-1, 0)$

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GO

Topic: Reducing fractions

Reduce the following fractions to lowest form. Then explain the mathematics that makes it possible to rewrite the fraction in its new form. (Improper fractions should not be written as mixed numbers.) If a fraction can't be reduced, explain why.

14.  $\frac{12}{15} = \frac{4}{5}$  Explanation: Numerator & denominator have a common factor of 3.   
 • canceled out the common factor   
 $\frac{12}{15} = \frac{3 \cdot 4}{3 \cdot 5} = \frac{4}{5}$

15.  $\frac{26}{11}$  can't be reduced Explanation: Numerator & denominator do not have any common factors besides 1

17.  $\frac{51}{17} = 3$  Explanation: Numerator & denominator have a common factor of 17   
 $\frac{51}{17} = \frac{3 \cdot 17}{1 \cdot 17} = 3$

18.  $\frac{6}{13}$  can't be reduced Explanation: Numerator & denominator do not have any common factors besides 1

19.  $\frac{114}{27} = \frac{38}{9}$  Explanation: Numerator & denominator have a common factor of 3   
 $\frac{114}{27} = \frac{3 \cdot 38}{3 \cdot 9} = \frac{38}{9}$

20.  $\frac{-14,529}{14,529} = -1$  Explanation: Numerator & denominator have a common factor of 14,529   
 $\frac{-14,529}{14,529} = \frac{-1 \cdot 14,529}{1 \cdot 14,529} = -1$

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