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Unit 11 - Rational Expressions and Functions Test

Simplify the following rational expressions.

1. $\dfrac{3xy+9y^2}{12y}$

2. $\dfrac{15a+20b}{6a+8b}$

3. $\dfrac{9x^2-81}{4x+12}$

4. $\dfrac{x^2+3x-4}{x^2-16}$

Perform the indicated operation for the following rational expressions.

5. $\dfrac{5xy^2}{14x^2y}\times\dfrac{28x^2}{10y^2}$

6. $\dfrac{3x+6y}{10xy}\times\dfrac{20y}{10x^2+20xy}$

7. $\dfrac{5a+10ab}{x^2-1}\div\dfrac{1+2b}{x+1}$

8 $\dfrac{6a-3}{5b-5}\div\dfrac{12a-6}{b-1}$

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

10. $\frac{3a-6}{6}-\frac{5a}{4}$

11. $3x+4+\frac{2x+3}{6}$

12. $\frac{3}{a-b}+\frac{2}{a+b}$

Divide the following polynomials.

13. $3x^3+4x^2-9x \ \ by\ x$

14. $a^5+2a^4-3a^3+4a-5 \ \ by\ a+1$

Find the unknown value of the following rational expressions.

15. $\frac{3}{x+1}+\frac{1}{x+1}=5$

16. $\frac{5z-1}{3}-\frac{2z+4}{6}=8$

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Unit 11 - Rational Expressions and Functions Test

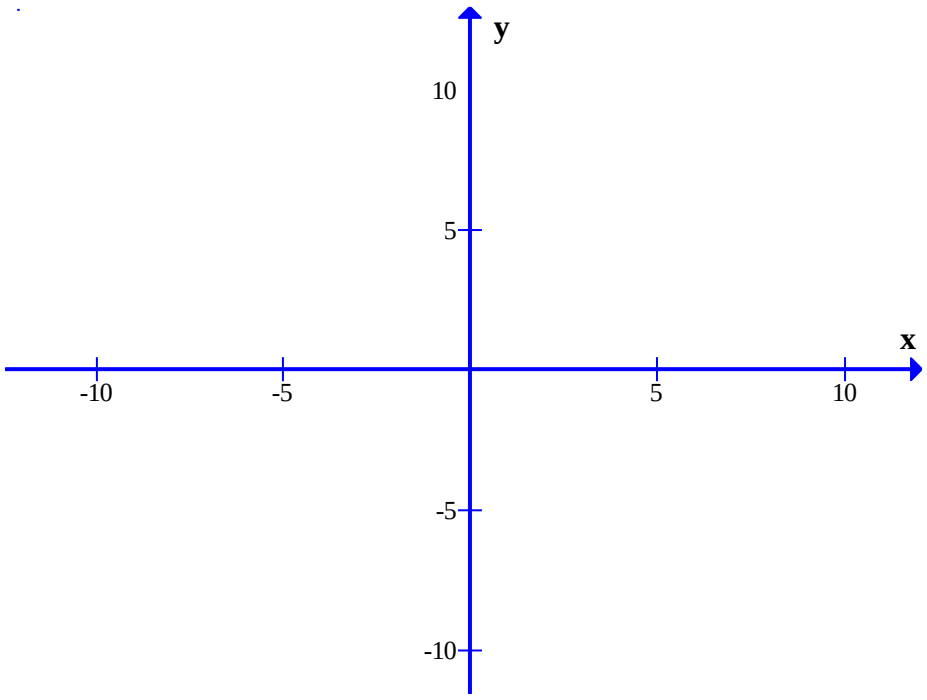
Solve problems involving inverse variation.

17. If 15 carpenters can build a house in 20 days, how long will it take 20 carpenters to do the same work, provided it can be done as efficient by 15 as by 20?

18. A train can travel point A to point B in 5 minutes at the speed of 100 kilometer per hour, how long will it take the slower train to travel the same distance with a speed of 60 kilometers per hour?

19. Find the x and y intercept of $y = \frac{4x+9}{2x-2}$.

20. Draw the Graph of $y = \frac{4x+9}{2x-2}$.



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