answers

Chapter 4B Practice Test

Simplify CD: $(3x-2)(x+7)(x-4)$

1. $\left(\frac{3x-2}{3x-2}\right)\ \frac{x-3}{x^2+3x-28}-\frac{x+1}{3x^2+19x-14}\left(\frac{x-4}{x-4}\right)$

$(x+7)(x-4)$ $(3x-2)(x+7)$

$$\frac{3x^2-2x-9x+6-(x^2-4x+x-4)}{(3x-2)(x+7)(x-4)}$$

$$\boxed{\frac{2x^2-18x+10}{(3x-2)(x+7)(x-4)}}$$

2. $\frac{3x^2}{x^2-4}\div\frac{15x^3-45x^2}{x^2+3x-10}$

$$\frac{3x^2}{(x-2)(x+2)}\cdot\frac{(x+5)(x-2)}{15x^2(x-3)}$$

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$$\boxed{\frac{x+5}{5(x+2)(x-3)}}$$

3. $\frac{2x^2+13x-7}{3x^2+12x-63}\cdot\frac{9x-18}{2x^2+9x-5}$

$$\frac{(2x-1)(x+7)}{3(x+7)(x-3)}\cdot\frac{3\cdot 3(x-2)}{(2x-1)(x+5)}$$

$$\boxed{\frac{3(x-2)}{(x-3)(x+5)}}$$

4. $\left(\frac{x-6}{x-6}\right)\ \frac{3}{x+2}+\frac{x-5}{x^2-4x-8\,12}$

$(x-6)(x+2)$

$$\frac{3x-18+x-5}{(x-6)(x+2)}$$

$$\boxed{\frac{4x-23}{(x-6)(x+2)}}$$

Solve for x

5. $\left(\frac{8}{x-5}=10\right)x-5$ $\quad x\neq 5$

$8=10x-50$

$58=10x$

$\boxed{5.8=x}$

6. $\left(\frac{x+2}{x+2}\right)\ \frac{x}{5x+5}=\frac{1}{x+2}+\frac{1}{x^2+3x+2}\left(\frac{5}{5}\right)$ $\quad x\neq -2,\ x\neq -1$

$5(x+1)$ $(x+1)(x+2)$

$x^2+2x=5x+5+5$

$x^2-3x-10=0$

$(x-5)(x+2)=0$

$\boxed{x=5}$; ~~$x=-2$~~

7. $\frac{5}{\frac{x^2-7x+12}{(x-3)(x-4)}} = \frac{2}{x-3} + \frac{5}{x-4}\left(\frac{x-3}{x-3}\right)$ $x \neq 3, 4$

$5 = 2x - 8 + 5x - 15$

$5 = 7x - 23$

$28 = 7x$

$4 = x$

no solution

8. You and your friend are making snowflakes for a fundraiser. You can make 7 snowflakes in 1 hour and your friend can make 10 snowflakes in an hour, how many could you make together in 3 hours?

$\frac{7}{1} + \frac{10}{1} = \frac{x}{3}$

$17 = \frac{x}{3}$

$x = 51$ snowflakes

9. Frank is going swimming in the river. He swam for 7 miles upstream and then 5 miles downstream. His rate in standing water is 6mph.

a. Write an equation for the total time he spent swimming.

	d	r	t
down	5	$6+x$	$\frac{5}{6+x}$
up	7	$6-x$	$\frac{7}{6-x}$

$T = \frac{5}{6+x} + \frac{7}{6-x}$

b. If he spent 2 hours swimming, how fast was the current?

$\left(\frac{6-x}{6-x}\right)\frac{5}{6+x} + \frac{7}{6-x}\left(\frac{6+x}{6+x}\right) = 2\left(\frac{(6-x)(6+x)}{(6-x)(6+x)}\right)$

$30 - 5x + 42 + 7x = 2(36 - x^2)$

$2x^2 + 2x = 0$

$2x(x+1) = 0$

$x = 0$

$x = -1$

no current speed

10. Joanna wants to have a 70% made shot percentage in lacrosse in order to make Varsity. She is currently at 4 out of 9 shots. How many more shots would she have to make in a row to get to 70%?

$\frac{4+x}{9+x} = \frac{70}{100}$

$100(4+x) = 70(9+x)$

$400 + 100x = 630 + 70x$

$30x = 230$

$x = 7.7.$

8 shots made