Name: Key Date: 1/19/18

CC ALGEBRA 2 TROICI

MIDTERM REVIEW #3

1. Solve for x: LCD = 5x

$\frac{5x}{1}\left(\frac{2}{x}+\frac{1}{5}=\frac{12}{5x}\right)$

$\frac{10x}{x}+\frac{5x}{5}=\frac{60x}{5x}$

$10+x=12$

$-10 \quad -10$

$x=2$

2. It takes Brad 2 hours to mow his lawn. It takes Kris 3 hours to mow the same lawn. At the same pace, how long would it take them to mow the lawn if they do the job together?

(1) $2\frac{1}{2}$ hours (3) $1\frac{1}{5}$ hours

(2) $1\frac{1}{6}$ hours (4) $\frac{5}{6}$ hours

LCD = 6x

$6x\left(\frac{1}{2}+\frac{1}{3}=\frac{1}{x}\right)$

$\frac{6x}{2}+\frac{6x}{3}+\frac{6x}{x}$

$3x+2x=6$

$5x=6$

$x=1.2=1\frac{1}{5}$

Simplify:

3. $\frac{x^2\left(1+\frac{2}{x}-\frac{35}{x^2}\right)}{x^2\left(1-\frac{3}{x}-\frac{10}{x^2}\right)}$ LCD = x^2

$\frac{x^2+2x-35}{x^2-3x-10}=\frac{(x+7)(x-5)}{(x-5)(x+2)}$

$=\frac{x+7}{x+2}$

4. $\frac{3x\left(\frac{2}{3}-\frac{4}{x}\right)}{3x\left(\frac{2}{3x}\right)}$ LCD = 3x

$=\frac{2x-12}{2}=\frac{2(x-6)}{2}$

$=x-6$

Solve for x:

5. $\sqrt{2x-1}-3=4$

$+3\ +3$

$(\sqrt{2x-1})^2=(7)^2$

$2x-1=49$

$+1\ \ +1$

$2x=50$

$\boxed{x=25}$

Check:

$\sqrt{2(25)-1}-3=4$

$\sqrt{49}-3=4$

$7-3=4$ ✓

6. $\sqrt{x+8}=-4$

NO SOLUTION!

$\sqrt{\ } \neq -!$

7. $\sqrt{x+5}+x=7$

$-x\ -x$

$(\sqrt{x+5})^2=(7-x)^2$

$x+5=(7-x)(7-x)$

$x+5=49-7x-7x+x^2$

$-x-5\ \ -5\ \ -x$

$x^2-15x+44=0$ (a, m)

$(x-11)(x-4)=0$

11 | $\boxed{4}$

Reject

Check:

$\sqrt{11+5}+11=7$ $\quad$ $\sqrt{4+5}+4=7$

$4+11\neq 7$ $\quad$ $3+4=7$ ✓

8. $\sqrt[3]{2x-1}+6=4$

$-6\ \ -6$

$(\sqrt[3]{2x-1})^3=(-2)^3$ → neg. cube are OKay

$2x-1=-8$

$+1\ \ +1$

$2x=-7$

$\boxed{x=-3.5}$

Check:

$\sqrt[3]{2(-3.5)-1}+6=4$

$\sqrt[3]{-8}+6=4$

$-2+6=4$ ✓

9. Write a polynomial equation whose zeros are x = –1 , x = 0, and x = 3.

$y=x(x+1)(x-3)$ $\quad$ $(x+1)(x)(x-3)$

$y=(x^2+x)(x-3)$

$y=x^3-3x^2+x^2-3x$

$\boxed{y=x^3-2x^2-3x}$