Review for Test 5.2

10) $\frac{12x^3}{5y^2} \cdot \frac{20y^8}{18x^7}$

$\frac{8}{3} \frac{x^3}{x^7} \frac{y^8}{y^2}$

$\boxed{\frac{8y^6}{3x^4}}$

11) $\frac{4x^2-8x}{10x^3-20x^2}$

$\frac{4x(x-2)}{10x^2(x-2)}$

$\boxed{\frac{2}{5x}}$

12) $\frac{x^2+10x+25}{x^2+9x+20}$

$\frac{(x+5)(x+5)}{(x+4)(x+5)}$

$\boxed{\frac{x+5}{x+4}}$

13) $\frac{6x^2-x-15}{2x^2-5x-12}$

$\frac{(2x+3)(3x-5)}{(2x+3)(x-4)}$

$\boxed{\frac{3x-5}{x-4}}$

14) $\frac{5abc}{5a+5b} \cdot \frac{10(a+b)}{abc}$

$\frac{5abc}{5(a+b)} \cdot \frac{10(a+b)}{abc}$

$\boxed{10}$

15) $\frac{x^2-x-12}{x^2-9} \div \frac{x^2-4x}{3x-9}$

$\frac{(x-4)(x+3)}{(x-3)(x+3)} \cdot \frac{3(x-3)}{x(x-4)}$

$\boxed{\frac{3}{x}}$

16) $\frac{3x+3}{6y+12} \div \frac{5y+5}{18}$

$\frac{3(y+1)}{6(y+2)} \cdot \frac{18}{5(y+1)}$

$\boxed{\frac{9}{5(y+2)}}$

17) $\frac{x^2-2x-15}{x} \cdot \frac{x^2-16}{x^2-x-12}$

$\frac{(x-5)(x+3)}{x} \cdot \frac{(x-4)(x+4)}{(x-4)(x+3)}$

$\boxed{\frac{(x-5)(x+4)}{x}}$

18) $\frac{x \cdot 2}{x \cdot 3x} + \frac{3 \cdot 3}{x^2 \cdot 3}$

LCD: $3x^2$

$\frac{2x}{3x^2} + \frac{9}{3x^2}$

$\boxed{\frac{2x+9}{3x^2}, x \neq 0}$

19) LCD: $(x+3)(x-2)$

$\frac{(x+3)}{(x+3)} \frac{x+3}{x-2} - \frac{13x-1}{x^2+x-6}$

$(x+3)(x+3) - (13x-1)$

$x^2+6x+9-13x+1$

$x^2-7x+10$

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

20) LCD: $(x+3)(x-3)$

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

$(x-2)(x-3) - 5(x+3)$

$x^2-5x+6-5x-15$

$x^2-10x-9$

$\boxed{\frac{x^2-10x-9}{(x-3)(x+3)}, x \neq \pm 3}$

21) $3 \cdot \frac{x}{x^2-5x+6} + \frac{2}{3x-6} (x-3)$

$\frac{x}{(x-2)(x-3)} \quad \frac{2}{3(x-2)}$

$3x + 2(x-3)$

$3x + 2x - 6$

$\boxed{\frac{5x-6}{3(x-2)(x-3)}, x \neq 2, 3}$

22) $\frac{x^2-16}{x+4} = \frac{6}{1} (x+4)$

$x^2-16 = 6(x+4)$

$x^2-16 = 6x+24$

$x^2-6x-40=0$

$(x-10)(x+4)=0$

$x = 10, 4$

$\boxed{x=10, x \neq 4}$

23) $\frac{1}{x} = \frac{5}{x-4} \; x(x-4)$

$x-4 = 5x$

$-4 = 4x$

$\boxed{x=-1, x \neq 0, 4}$

24) $\frac{5}{x+1} = \frac{3}{x-2}$ $(x+1)(x-2)$

$5(x-2) = 3(x+1)$

$5x-10 = 3x+3$

$2x = 13$

$\boxed{x = 6.5 \; ; x \neq -1, 2}$

25) LCD = 12x

$\frac{3}{4x}(12x) - \frac{10}{3x}(12x) = \frac{3}{1}(12x)$

$15 - 40 = 36x$

$-25 = 36x$

$\boxed{x = \frac{-25}{36} \; x \neq 0}$

26) $x(x+9) = \frac{10}{x} \cdot x$

$x^2 + 9x = 10$

$x^2 + 9x - 10 = 0$

$(x+10)(x-1) = 0$

$\boxed{x = -10, 1 \; ; x \neq 0}$

27) $(x-3)(x+3)$ $(x-3)(x+3)$

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

$x(x-3) - x(x+3) = x^2+9$

$x^2 - 3x - x^2 - 3x = x^2 + 9$

$-6x = x^2 + 9$

$x^2 + 6x + 9 = 0$

$(x-3)(x-3) = 0$

$x = 3, \; x \neq \pm 3$

$\boxed{\text{No Solution}}$