

WS #1 section 20.1

Name SOLUTIONS

Simplifying Rational Expressions

Date _____ Period _____

Simplify each expression.

$$1) \frac{36x^3}{42x^2} = \frac{6x}{7}$$

$$2) \frac{16r^2}{16r^3}$$

$$3) \frac{16p^4}{28p} = \frac{4p}{7}$$

$$4) \frac{32n^2}{24n}$$

$$5) \frac{70n^5}{28n^2} = \frac{5n}{2}$$

$$6) \frac{15n}{30n^3}$$

$$7) \frac{2r-4}{r-2} = \frac{2(r-2)}{(r-2)} = 2$$

$$8) \frac{45}{10a-10} = \frac{9}{2(a-1)} = \frac{9}{2(a-1)}$$

$$9) \frac{x-4}{3x^2-12x} = \frac{(x-4)}{3x(x-4)} = \frac{1}{3x}$$

$$10) \frac{15a-3}{24}$$

$$11) \frac{v-5}{v^2-10v+25} = \frac{(v-5)}{(v-5)(v-5)} = \frac{1}{v-5}$$

~~$\frac{25}{-5 \times -5}$~~

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

$$13) \frac{27}{27x+18} = \frac{3}{27} \cdot \frac{3}{3x+2}$$

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

$$14) \frac{v^2 - 7v - 30}{v^2 - 5v - 24}$$

$$15) \frac{x^2 + 8x + 12}{x^2 + 3x - 18} = \frac{(x+6)(x+2)}{(x+6)(x-3)}$$

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

$$16) \frac{x^2 - 11x + 18}{x^2 + 2x - 8}$$

$$17) \frac{b^2 + 3b - 28}{b^2 - 49} = \frac{(b+7)(b-4)}{(b+7)(b-7)}$$

$$= \frac{b-4}{b-7}$$

$$18) \frac{v^2 - 3v - 40}{v^2 - 11v + 24}$$

$$19) \frac{4n-4}{6n-20} = \frac{4(n-1)}{2(3n-10)}$$

$$= \frac{2(n-1)}{3n-10}$$

$$20) \frac{v^2 - 5v - 14}{v^2 + 4v + 4}$$

$$21) \frac{6v^3 + 42v^2}{2v^2 + 26v + 84} = \frac{6v^2(v+7)}{2(v^2+13v+42)}$$

$$= \frac{3v^2(v+7)}{2(v+7)(v+6)} = \frac{3v^2}{v+6}$$

$$22) \frac{x^3 - x^2 - 42x}{2x^2 - 20x + 42}$$

$$23) \frac{2v^2 + 10v - 48}{8v + 64} = \frac{2(v^2 + 5v - 24)}{8(v+8)}$$

$$= \frac{2(v-3)(v+8)}{8(v+8)} = \frac{v-3}{4}$$

$$24) \frac{9x^2 + 81x}{x^3 + 8x^2 - 9x}$$

$$25) \frac{x^2 + 2x - 80}{2x^3 - 24x^2 + 64x} = \frac{(x+10)(x-8)}{2x(x^2 - 12x + 32)}$$

$$= \frac{(x+10)(x-8)}{2x(x-4)(x-8)} = \frac{x+10}{2x(x-4)}$$

$$26) \frac{3r^2 - 39r + 90}{r^2 - 3r - 70}$$