

## U1 - Rational Expressions: Practice

**Use this problem set to help yourself prepare for the Test.**

**Questions? I'm available via Edsby, and in class.**

**Thursday after school - extra help session!**

**Solutions will be posted on Thursday.**

**Factor each completely.**

1)  $a^3 + 14a^2 + 40a$

2)  $b^2 - 2b - 63$

$$3) n^2 - 10n + 24$$

$$4) x^2 + 9x + 8$$

$$5) 4x^2 + 15x + 9$$

$$6) 4p^2 - 49$$

$$7) 6k^2 - 17k - 14$$

$$8) 6m^2 + 2m$$

**Multiply the rational expressions. Be certain to state your restrictions**

$$9) \frac{18n + 81}{6n + 27} \cdot \frac{3}{n - 2}$$

$$10) \frac{6a + 42}{a + 2} \cdot \frac{1}{a + 7}$$

$$11) \frac{20x + 36}{x - 4} \cdot \frac{3x - 4}{15x^2 + 7x - 36}$$

$$12) \frac{8}{16p + 48} \cdot \frac{2p^2 + 24p + 54}{3}$$

**Divide the Rational Expressions. Be sure to state (ALL) of your restrictions.**

$$13) \frac{n-5}{n^2-7n-18} \div \frac{1}{n+2}$$

$$14) \frac{a+7}{a+8} \div \frac{4a-36}{a-9}$$

$$15) \frac{3m^2-11m-4}{24m+8} \div \frac{2m^2-7m+3}{2m-1}$$

$$16) \frac{5b+10}{2b^2+26b+80} \div \frac{5b^2+20b+20}{14b+70}$$

**Add the Rational Expressions. State your restrictions!**

$$17) \frac{4x}{3x-5} + \frac{3}{5x+5}$$

$$18) \frac{5v}{3v+5} + \frac{5v}{v+6}$$

$$19) \frac{5k}{4k^2} + \frac{6}{3k^2+k-4}$$

$$20) \frac{4}{2x^2+8x+6} + \frac{6}{2x^3}$$

**Subtract. Does it really need to be said? :)**

$$21) \frac{4}{2x^3 + 12x^2} - \frac{2x}{x-2}$$

$$22) \frac{3}{4k^2 - 28k + 24} - \frac{6}{3}$$

**Simplify.**

$$23) \frac{p+1}{p^2+2p-35} + \frac{p+4}{p^2-2p-24} \cdot \frac{p^2-4p-12}{p^2+12p+35}$$