

## Algebra II

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2.) $\frac{t^2-3t}{2}$ or $\frac{t(t-3)}{2}$	14.) $\frac{p+5}{p-1}$	34.) $\frac{(u+v)(u-v)}{u^2+v^2}$ or $\frac{u^2-v^2}{u^2+v^2}$
4.) $\frac{z(z+2)}{z-2}$	16.) 1	36.) $\frac{x+y-4}{x+y+4}$
6.) $\frac{r}{r+5}$	18.) $\frac{1+r+r^2}{(1-r)^2}$	38.) $\frac{a-b}{a+b}$
8.) $\frac{x-a}{x+a}$ or $\frac{a-x}{-x-a}$ or $-\frac{a-x}{x+a}$	20.) $\frac{t-c}{t+c}$	40.) $\frac{x-y+z}{x+y-z}$
10.) $\frac{2t-1}{2t+1}$	30.) $t-1$	
12.) $-\frac{3+2z}{3z+2}$ or $\frac{-3-2z}{3z+2}$ or $\frac{3+2z}{-3z-2}$	32.) $\frac{(x+y)^2}{x^2+xy+y^2}$	

$$2) \frac{3t^4 - 9t^3}{6t^2} \quad \text{reduce by } 3t^2$$

$$\frac{t^2 - 3t}{2}$$

$$8) \frac{(a-x)^2}{(x^2-a^2)} = \frac{(a-x)^2}{(x+a)(x-a)}$$

$$\frac{(a-x)(a-x)}{(x+a)(x-a)} = \frac{-1(\cancel{x-a})(a-x)}{(x+a)(\cancel{x-a})}$$

$$\frac{-1(a-x)}{x+a}$$

$$6) (r^2 - rs)(r^2 - s^2)^{-1}$$

$$\frac{(r^2 - rs)}{(r^2 - s^2)} = \frac{r(\cancel{r-s})}{(r+s)(\cancel{r-s})}$$

$$\frac{r}{r+s}$$

$$\frac{-a+x}{x+a} \text{ or } \frac{x-a}{x+a} \text{ or } -\frac{a-x}{x+a}$$

$$\frac{x-a}{a-x} = -1$$

$$12) \frac{9-4z^2}{6z^2-5z-6}$$

$$\frac{(-1)(\cancel{3-2z})(3+2z)}{(3z+2)(\cancel{2z-3})}$$

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

$$18) \frac{(1-r^3)(1-r)^{-3}}{1-r^3} \quad a^3-b^3 = (a-b)(a^2+ab+b^2)$$

$$\frac{(\cancel{1-r})(1^2+1r+r^2)}{(1-r)^{\cancel{3}-2}}$$

$$= \frac{1+r+r^2}{(1-r)^2}$$

$$\begin{aligned}
 30) \quad \frac{t^4 - 1}{(t^3 + t^2 + t + 1)} &= \frac{(t^2 + 1)(t^2 - 1)}{t^2(t+1) + 1(t+1)} = \frac{\cancel{(t^2 + 1)}(t^2 - 1)}{(t+1)\cancel{(t^2 + 1)}} \\
 &= \frac{\cancel{(t+1)}(t-1)}{\cancel{t+1}} = t-1
 \end{aligned}$$

$$\begin{aligned}
 40) \quad \frac{x^2 + y^2 - z^2 - 2xy}{x^2 - y^2 + z^2 - 2xz} &= \frac{(x^2 - 2xy + y^2) - z^2}{(x^2 - 2xz + z^2) - y^2} = \frac{(x-y)(x-y) - z^2}{(x-z)(x-z) - y^2} \\
 \frac{(x-y)^2 - z^2}{(x-z)^2 - y^2} &= \frac{(x-y+z)\cancel{(x-y-z)}}{(x-z+y)\cancel{(x-z-y)}} = \frac{x-y+z}{x+y-z}
 \end{aligned}$$