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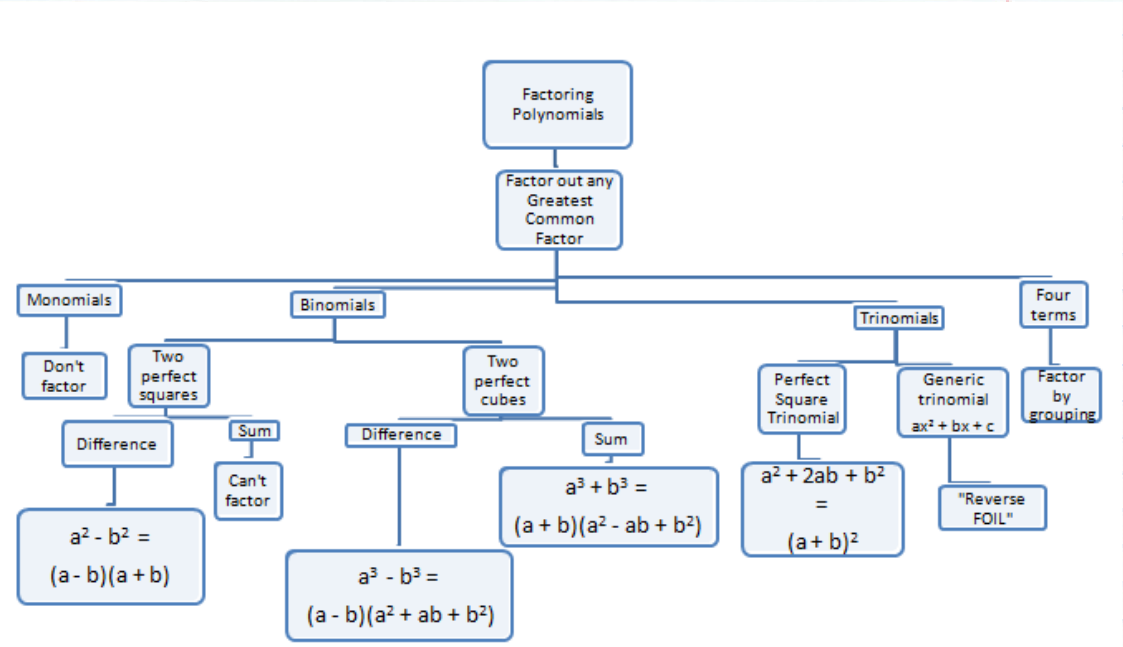
Factoring Polynomials



Factoring Practice

Factor each completely.

1) $5p^2 - 42p + 16$

2) $2n^2 - 15n + 25$

3) $7x^2 + 17x + 6$

4) $3x^2 + 8x - 60$

5) $5n^2 - 31n + 30$

6) $3p^2 - 25p + 42$

7) $5x^2 - 24x - 36$

8) $2b^2 + b - 10$

Radical Expressions

$\sqrt{20}$ ← radicand

Product Property $\sqrt{a \cdot b} = \sqrt{a} \cdot \sqrt{b}$

Quotient Property $\sqrt{\frac{a}{b}} = \frac{\sqrt{a}}{\sqrt{b}}$

Simplest Radical Form
- -no perfect square factor in the radicand *
- -no radical in the denominator

1, 4, 9, 16, 25, 36 ...

1. $\sqrt{50} = \sqrt{2 \cdot 5 \cdot 5} = 5\sqrt{2}$

2 · 25 → 5 · 5

$\sqrt{50} = \sqrt{25} \cdot \sqrt{2}$

$5\sqrt{2}$

2. $\sqrt{7} * \sqrt{35} = \sqrt{7} \cdot \sqrt{7} \cdot \sqrt{5} = 7\sqrt{5}$

3. $\sqrt{\frac{11}{144}} = \frac{\sqrt{11}}{\sqrt{144}} = \frac{\sqrt{11}}{12}$

4. $\sqrt{\frac{2}{15}} = \frac{\sqrt{2}}{\sqrt{15}} \cdot \frac{\sqrt{15}}{\sqrt{15}} = \frac{\sqrt{30}}{15}$

5. $4(3 + \sqrt{2}) = 12 + 4\sqrt{2}$ STOP!

~~$16\sqrt{2}$~~ NO!

Radical Expressions (continued)

6. $(3+\sqrt{2})(4-\sqrt{8})$

FOIL

$12-3\sqrt{8}+4\sqrt{2}-\sqrt{16}$

$12-3\sqrt{4}\sqrt{2}+4\sqrt{2}-4$

$12-3\cdot 2\sqrt{2}+4\sqrt{2}-4$

$12-6\sqrt{2}+4\sqrt{2}-4$

$8-2\sqrt{2}$

7. $\dfrac{4}{5-\sqrt{2}} \cdot \dfrac{5+\sqrt{2}}{5+\sqrt{2}} = \dfrac{4(5+\sqrt{2})}{(5-\sqrt{2})(5+\sqrt{2})}$

$= \dfrac{20+4\sqrt{2}}{25-2} = \dfrac{20+4\sqrt{2}}{23}$

8. $\dfrac{7}{2+\sqrt{3}}$

9. $\dfrac{2+2\sqrt{3}}{2}$

(9.)

$\dfrac{6+4\sqrt{3}}{2} =$