Warm-up

$(c^2+1)(c^2+2) = c^4 + 2c^2 + 1c^2 + 2$

F O I L

$c^4 + 3c^2 + 2$

$\left(y - \frac{1}{2}\right)\left(y + \frac{3}{4}\right)$

$y\left(y + \frac{3}{4}\right) + -\frac{1}{2}\left(y + \frac{3}{4}\right)$

$y \cdot y + y \cdot \frac{3}{4} + -\frac{1}{2} \cdot y + -\frac{1}{2} \cdot \frac{3}{4}$

$y^2 + \frac{3}{4}y - \frac{1}{2}y - \frac{3}{8}$

$\frac{3}{4} + \left(-\frac{1}{2} \cdot \frac{2}{2}\right)$

$\frac{3}{4} + -\frac{2}{4}$

$y^2 + \frac{1}{4}y - \frac{3}{8}$

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21. $(p+q)(p+q)$

$p(p+q)+q(p+q)$

$p\cdot p + p\cdot q + q\cdot p + q\cdot q$

$p^2 + 1pq + 1pq + q^2$

$p^2 + 2pq + q^2$

17. $\left(y-\frac{1}{3}\right)\left(y+\frac{5}{9}\right)$

$y^2 + \frac{5}{9}y - \frac{1}{3}y - \frac{1}{3}\cdot\frac{5}{9}$

$\frac{5}{9} - \frac{1\cdot 3}{3\cdot 3}$ $\quad -\frac{5}{27}$

$\frac{5}{9} - \frac{3}{9}$

$y^2 + \frac{2}{9}y - \frac{5}{27}$

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Sec. 9.5 Common Factors

Factor each polynomial.

a. $4y^3 - 16y^4$

$4 \cdot y \cdot y \cdot y - 4 \cdot 4 \cdot y \cdot y \cdot y \cdot y$

$4y^3(1 - 4y)$ $4yyy(1-4y)$

$4y^3(1-4y)$

$3 \cdot 5 \cdot p \cdot p$

b. $6p + 15p^2 - 9pq$

$3p$ $3p$ $3p$

$3p(2 + 5p - 3q)$

c. $8r^4 + 17s^4$

$1(8r^4 + 17s^4)$

prime

(not factorable)

d. $\frac{6ab}{3a} + \frac{3a}{3a}$

$3a(2b + 1)$

$\frac{6ab}{3} + \frac{3a}{3}$

$3\left(\frac{2ab}{a} + \frac{1a}{a}\right)$

$3a(2b+1)$

e. $\frac{5x^3}{5x} + \frac{10x^2}{5x} - \frac{20x}{5x}$

$5x(x^2 + 2x - 4)$

P. 450 (13 -27) odd