6.5 even p 382

Z-50

(2) $\frac{3^{30}}{3^{10}} = 3^{30} \cdot 3^{-10}$

$= 3^{30-10}$

$= \boxed{3^{20}}$

(4) $\frac{x^8}{x^4} = x^8 \cdot x^{-4}$

$= x^{8-4}$

$= \boxed{x^4}$

(6) $\frac{y^{19}}{y^6} = y^{19} \cdot y^{-6}$

$= y^{19-6}$

$= y^{13}$

$= \boxed{y^{13}}$

(8) $\frac{3^6 \cdot 2^8}{3^3 \cdot 2^4} = 3^6 \cdot 3^{-3} \cdot 2^8 \cdot 2^{-4}$

$= 3^{6-3} \cdot 2^{8-4}$

$= \boxed{3^3 \cdot 2^4}$

(10) $\frac{x^{200} y^{40}}{x^{25} y^{10}} = x^{200} \cdot x^{-25} y^{40} y^{-10}$

$= x^{200-25} y^{40-10}$

$= \boxed{x^{175} y^{30}}$

(12) $4^0 = \boxed{1}$

(14) $(-4)^0 = \boxed{1}$

(16) $-4^0 = \boxed{-1}$

(18) $200y^0 = 200 \cdot 1$

$= \boxed{200}$

(20) $(200y)^0 = 200^0 \cdot y^0$

$= 1 \cdot 1$

$= \boxed{1}$

(22) $-6^0 + (-6)^0$

$= -1 + 1$

$= \boxed{0}$

(24) $-\sqrt{3^0} - (-\sqrt{3})^0$

$= -\sqrt{1} - 1$

$= -1 - 1$

$= \boxed{-2}$

(26)

(6) every p 58

(26) $\left(\frac{x}{5}\right)^2 = \frac{x^2}{5^2} = \boxed{\frac{x^2}{25}}$

(28) $\left(\frac{x^2}{3}\right)^3 = \frac{x^{2\cdot 3}}{3^3} = \boxed{\frac{x^6}{27}}$

(30) $\left(\frac{3x^4}{7}\right)^2 = \frac{3^2 x^{4\cdot 2}}{7^2} = \boxed{\frac{9x^8}{49}}$

(32) $\left(\frac{-5}{2a^3}\right)^3 = \frac{(-5)^3}{2^3 a^{3\cdot 3}} = \boxed{\frac{-125}{8a^9}}$

(34) $\left(\frac{-2a^8}{b^3}\right)^5 = \frac{(-2)^5 a^{8\cdot 5}}{b^{3\cdot 5}} = \frac{32a^{40}}{b^{15}}$

(36) $\left(\frac{x^3 y^2}{2z}\right)^4 = \frac{x^{3\cdot 4} y^{2\cdot 4}}{2^4 z^4} = \boxed{\frac{x^{12} y^8}{16 z^4}}$

(38) $\frac{30x^{10}}{10x^5} \neq 3x^5$

check

$3x^5 \cdot 10x^5 = 30x^{10}$

(40) $\frac{-15x^{40}}{3x^4} = -5x^{40}x^{-4} = \boxed{-5x^{40-4}} = \boxed{-5x^{36}}$

(42) $\frac{-15y^3}{45y^9} = \frac{-1}{3y^9 y^{-3}} = \frac{-1}{3y^{9-3}} = \boxed{\frac{1}{3y^6}}$

6.5 even ...

(44) $\frac{9y^{19}}{7y^{11}} = \frac{9y^{19}y^{-11}}{7}$

$= \boxed{\frac{9y^{8}}{7}}$

(46) $\frac{40x^{9}y^{5}}{2x^{2}y} = 20x^{9-2}y^{5-1}y^{-1}$

$= 20x^{9-2}y^{5-1}$

$= \boxed{20x^{7}y^{4}}$

(48) $\frac{-15x^{16}y^{2}}{45x^{2}y^{3}} = \frac{-x^{16}x^{-2}y^{2}y^{-2}}{3}$

$= \frac{-x^{16-2}y^{2-2}}{3}$

$= \frac{-x^{14}y^{0}}{3}$

$= \boxed{\frac{-x^{14}}{3}}$

(50) $\frac{7x^{30}y^{30}}{15x^{30}y^{30}} = \frac{7x^{30}x^{-30}y^{30}y^{-30}}{15}$

$= \frac{7x^{30-30}y^{30-30}}{15}$

$= \frac{7x^{0}y^{0}}{15}$

$= \boxed{\frac{7}{15}}$

(52) $\frac{-8x^{12}y^{10}z^{4}}{40x^{2}y^{3}z^{2}} = -\frac{1x^{12}x^{-2}y^{10}y^{-3}z^{4}z^{-2}}{5}$

$= \frac{-x^{12-2}y^{10-3}z^{4-2}}{5}$

$= \boxed{\frac{-x^{10}y^{7}z^{2}}{5}}$

(54) $\frac{20x^{4}+5x^{3}}{5}$

$= \frac{20x^{4}}{5} + \frac{5x^{3}}{5}$

$= \boxed{4x^{4}+x^{3}}$

check

$5(4x^{4}+x^{3}) = 20x^{4}+5x^{3}$ ✓

6.3 even p376

(56) $\frac{24x^4 - 8x^3}{8x} = \frac{24x^4}{8x} - \frac{8x^3}{8x}$

$= 3x^4 x^{-1} - x^3 x^{-1}$

$= 3x^{4-1} - x^{3-1}$

$= \boxed{3x^3 - x^2}$

(58) $\frac{y^8 - 11y^3 + y}{y} = \frac{y^8}{y} - \frac{11y^3}{y} + \frac{y}{y}$

$= y^8 y^{-1} - 11y^3 y^{-1} + y^1 y^{-1}$

$= y^{8-1} - 11y^{3-1} + y^{1-1}$

$= y^7 - 11y^2 + y^0$

$= \boxed{y^7 - 11y^2 + 1}$

(60) $\frac{10x^3 - 20x^2}{-5x} = \frac{10x^3}{-5x} - \frac{20x^2}{-5x}$

$= -2x^3 x^{-1} - (-4x^2 x^{-1})$

$= -2x^{3-1} + 4x^{2-1}$

$= \boxed{-2x^2 + 4x}$

6.5 even p50

(62) $\frac{18x^5 + 24x^4 + 12x^3}{6x^2}$

$= \frac{18x^5}{6x^2} + \frac{24x^4}{6x^2} + \frac{12x^3}{6x^2}$

$= \boxed{3x^3 + 4x^2 + 2x}$

(64) $\frac{49x^4 - 14x^3 + 70x^2}{-7x}$

$= \frac{49x^5}{-7x} - \frac{14x^3}{-7x} + \frac{70x^2}{-7x}$

$= \boxed{-7x^4 + 2x^2 - 10x}$

(66) $(16y^2 - 8y) \div y$

$= \frac{16y^2}{y} - \frac{8y}{y}$

$= \boxed{16y - 8}$

(68) $\frac{12y^4 - 42y^2}{-4y}$

$= \frac{12y^4}{-4y} - \frac{42y^2}{-4y}$

$= \boxed{-3y^3 + \frac{21y}{2}}$

(70) $\frac{9x^3 + 12x^2 - 3x}{3x}$

$= \boxed{3x^2 + 4x - 1}$

(72) $\frac{49x^7 - 28x^5 - 7x^4}{7x^3}$

$= \boxed{7x^4 - 4x^2 - x}$

(74) $\frac{25x^8 - 50x^7 + 3x^6 - 40x^5}{-5x^5}$

$= \boxed{-5x^3 + 10x^2 - \frac{3x}{5} + 8}$

(75) $\frac{12x^2y^2 + 6x^2y - 15xy^2}{3xy}$

$= \boxed{4xy + 2x - 5y}$

(76) $\frac{18a^3b^2 - 9a^2b - 27ab^2}{9ab}$

$\boxed{2a^2b - a - 3b}$

(78) $\frac{8x^6y^3 - 12x^8y^2 - 4x^{14}y^6}{-4x^6y^2}$

$= \boxed{-2x^2y + 3x^2 + x^8y^4}$

(80) $\frac{6x^3(3x-1) + 5x^2(6x-3)}{3x^2}$

$= \frac{18x^4 - 6x^3 + 30x^3 - 15x^2}{3x^2}$

$= 6x^2 - 2x + 10x - 5$

$= \boxed{6x^2 + 8x - 5}$