9-6-13

3rd Trig

① Simplify $\frac{6a^4b^2c}{8ab^3c^2}$

$\frac{\cancel{6}^{3}\,a\,a\,a\,a\,\cancel{b}\,\cancel{b}\,\cancel{c}}{\cancel{8}_{4}\,\cancel{a}\,\cancel{b}\,\cancel{b}\,\cancel{b}\,\cancel{c}\,\cancel{c}} = \frac{3a^3}{4bc}$

② Simplify $\frac{a^{-3}b^2}{a^{-1}b^{-3}}$

$\frac{a\;b^2b^3}{a^3} = \frac{\cancel{a}\,bbbbb}{\cancel{a}\,aa} = \frac{b^5}{a^2}$

③ Simplify $\left(\frac{2}{y^3}\right)^{-2}$

$\left(\frac{2}{y^3}\right)^{-1\cdot 2} = \left(\frac{y^3}{2}\right)^2$

$\frac{y^3}{2}\cdot\frac{y^3}{2} = \frac{y^6}{4}$

④ Simplify $\left(\frac{a^{-3}b}{5}\right)^{-2}$

$\left(\frac{b}{5a^3}\right)^{-1\cdot 2} = \left(\frac{5a^3}{b}\right)^2$

$\frac{5a^3}{b}\cdot\frac{5a^3}{b} = \frac{25a^6}{b^2}$

⑤ Simplify $\left(\frac{2a^{-2}b}{3^{-1}b^2}\right)^{-2}$

$\left(\frac{2\,b\cdot 3}{a^2\,b^2}\right)^{-2}$

$\left(\frac{6}{a^2b}\right)^{-1\cdot 2} = \left(\frac{a^2b}{6}\right)^2$

$\frac{a^2b}{6}\cdot\frac{a^2b}{6} = \frac{a^4b^2}{36}$

⑥ Simplify $\left(\frac{2}{5}\right)^{-2}$

$\left(\frac{2}{5}\right)^{-1\cdot 2} = \left(\frac{5}{2}\right)^{2} = \frac{5}{2}\cdot\frac{5}{2} = \frac{25}{4}$

⑦ Simplify $(-1)^{-3}$

$\left(\frac{-1}{1}\right)^{-1\cdot 3}$

$\left(\frac{1}{-1}\right)^{3} = (-1)^{3} = -1\cdot -1\cdot -1 = -1$

⑧ Simplify $(-2)^{-2}$

$\left(\frac{-2}{1}\right)^{-1\cdot 2} = \left(\frac{1}{-2}\right)^{2} = \frac{1}{-2}\cdot\frac{1}{-2} = \frac{1}{4}$

⑨ $\left(\frac{2x^{4}y^{-1}}{5x^{3}y^{4}z}\right)^{-2}$

$\left(\frac{2xxxx}{5xxxyyyyz}\right)^{-1\cdot 2}$

$\left(\frac{2x}{5y^{2}z}\right)^{-1\cdot 2}$

$\left(\frac{5y^{2}z}{2x}\right)^{2}$

$\frac{5y^{2}z}{2x}\cdot\frac{5y^{2}z}{2x} = \frac{25y^{4}z^{2}}{4x^{2}}$

⑩ Simplify $\left(7^{6}\cdot 7^{3}\right)^{10}$

$(7\cdot 7\cdot 7\cdot 7\cdot 7\cdot 7 \quad 7\cdot 7\cdot 7)^{10}$

$(7^{9})^{10}$

$7^{9}\cdot 7^{9}\cdot 7^{9}\cdots = 7^{90}$

⑪ Simplify $\left(2^{4}\cdot 2^{2}\right)^{7}$

$(2\cdot 2\cdot 2\cdot 2\cdot 2\cdot 2)^{7}$

$(2^{6})^{7}$

2^{42}

9-6-13

4th Trig

① Simplify $\frac{6a^3bc}{10ab^3c^2}$

$\frac{3aaabc}{5abbbcc}$ $\frac{3a^2}{5b^2c}$

② Simplify $\frac{a^{-3}b^2c^{-1}}{ab^{-2}c^{-3}}$

$\frac{b^2c^3b^2}{a^3ca} = \frac{bbccbb}{aaaca}$

$= \frac{b^4c^2}{a^4}$

③ Simplify $\left(\frac{2a^2}{3y}\right)^{-2}$

$\left(\frac{2a^2}{3y}\right)^{-1\cdot 2}$

$\left(\frac{3y}{2a^2}\right)^2 = \frac{3y}{2a^2}\cdot\frac{3y}{2a^2} = \frac{9y^2}{4a^4}$

④ Simplify $\left(\frac{2a^3b}{5ab^2}\right)^{-2}$

$\left(\frac{2aaab}{5abb}\right)^{-2}$

$\left(\frac{2a^2}{5b}\right)^{-1\cdot 2} = \left(\frac{5b}{2a^2}\right)^2$

$= \frac{5b}{2a^2}\cdot\frac{5b}{2a^2} = \frac{25b^2}{4a^4}$

⑤ Simplify: $\left(\frac{a^{-2}b^2c}{abc^{-2}}\right)^{-2}$

$\left(\frac{b^2cc^2}{a^2ab}\right)^{-1\cdot 2}$

$\left(\frac{bbccc}{aaab}\right)^{-1\cdot 2}$

$\left(\frac{bc^3}{a^3}\right)^{-1\cdot 2} = \left(\frac{a^3}{bc^3}\right)^2 = \frac{a^3}{bc^3}\cdot\frac{a^3}{bc^3}$

$\frac{a^6}{b^2c^6}$

⑥ Simplify $\left(\frac{-2}{3}\right)^{-2}$

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

$\left(\frac{3}{-2}\right)^2 = \frac{3}{-2}\cdot\frac{3}{-2} = \frac{9}{4}$

⑦ Simplify $(-3a^{-2})^{-2}$

(8) Simplify $\frac{a^2}{b^3} \cdot \frac{b^4}{a^6}$

$\frac{a\,a\,b\,b\,b\,b}{b\,b\,b\,a\,a\,a\,a\,a\,a} = \frac{b}{a^4}$

(9) $(2s^{-3}t^2u^{-1}d)^{-3}$

$\left(\frac{2t^2d}{s^3u}\right)^{-1\cdot 3}$

$\left(\frac{s^3u}{2t^2d}\right)^3$

$\frac{s^3u}{2t^2d} \cdot \frac{s^3u}{2t^2d} \cdot \frac{s^3u}{2t^2d} = \frac{s^9u^3}{8t^6d^3}$

(10) Simplify $(7^4 \cdot 7^3)^{10}$

$(7\cdot7\cdot7\cdot7 \cdot 7\cdot7\cdot7)^{10}$

$(7^7)^{10}$

7^{70}

(11) Simplify $(2^5 \cdot 2^4)^6$

$(2^9)^6$

2^{54}