

8-21-19 1st Trig

$$\frac{6x+8}{2} = \frac{\cancel{6}^3 x + \cancel{8}^4}{\cancel{2}_1} = \frac{3x+4}{2}$$

$$\textcircled{1} \quad \frac{\overset{2}{10}x + \overset{1}{8}}{\underset{3}{15}} = \frac{2x+1}{3}$$

$$\textcircled{2} \quad \frac{\overset{2}{4}n + \overset{4}{8}}{\underset{2}{2}} = 2n+4$$

$$\textcircled{3} \quad \frac{6 + \sqrt{8}}{2} = \frac{\overset{3}{6} + \overset{1}{2}\sqrt{2}}{\underset{1}{2}} = 3 + \sqrt{2}$$

$$\textcircled{4} \quad \frac{8 + \sqrt{12}}{4} = \frac{\overset{4}{8} + \overset{1}{2}\sqrt{3}}{\underset{2}{4}} = \frac{4 + \sqrt{3}}{2}$$

$\sqrt{12} = \sqrt{2 \cdot 2 \cdot 3} = 2\sqrt{3}$

$$\textcircled{5} \frac{15 + \sqrt{75}}{5}$$

$$\frac{\overset{3}{\cancel{15}} + \overset{1}{\cancel{5}}\sqrt{3}}{\cancel{5}_1}$$

$$\sqrt{75} = \sqrt{\overset{5 \cdot 5 \cdot 3}{\cancel{5 \cdot 5} \cdot 3}}$$

$$3 + \sqrt{3}$$

$$\textcircled{6} \frac{4 \pm \sqrt{-20}}{8} = \frac{\overset{2}{\cancel{4}} \pm \overset{1}{\cancel{2}}\sqrt{5}}{\cancel{8}_4}$$

$$= \frac{2 \pm i\sqrt{5}}{4}$$

$$\textcircled{7} \frac{\sqrt{24} + \sqrt{28}}{2} = \frac{\cancel{2}\sqrt{6} + \cancel{2}\sqrt{7}}{\cancel{2}}$$

$$\sqrt{24} = 2\sqrt{\overset{2 \cdot 2 \cdot 2 \cdot 3}{\cancel{2 \cdot 2 \cdot 2} \cdot 3}}$$

$$\sqrt{6} + \sqrt{7}$$

$$\sqrt{28} = \sqrt{\overset{2 \cdot 2 \cdot 7}{\cancel{2 \cdot 2} \cdot 7}}$$

$$\sqrt{4} + \sqrt{9} = \sqrt{3}x$$

$$2 + 3 = 5$$

$$\underline{x \cdot x} = 2x \text{ or } \textcircled{x^2}$$

$$\underline{7 \cdot 7} = 2 \cdot 7 \text{ or } \textcircled{7^2}$$

New lesson

$$2n^3 \cdot 4n^2$$

$$2 \cdot nnn \cdot 4nn$$

$$\textcircled{1} \frac{6n^4}{2n^5} = \frac{\overset{3}{\cancel{6}} \cancel{nnnn}}{\cancel{2} \cdot \cancel{nnnnn}} = \frac{3}{n}$$

$$\textcircled{2} \frac{4ab^3}{6a^3b^2} = \frac{\overset{2}{\cancel{4}} \cancel{a} \cancel{bbb}}{\overset{3}{\cancel{6}} \cancel{aaa} \cancel{bb}} = \frac{2b}{3a^2}$$

$$\textcircled{3} \frac{a^3b^2c^2d}{abc^4d^2} = \frac{\cancel{aaa} \cancel{bb} \cancel{c} \cancel{d}}{\cancel{a} \cancel{b} \cancel{cccc} \cancel{d}} = \frac{a^2b}{c^2d} = (a^2b)(c^2d)$$

$$n^{-3} = \frac{1}{n^3}$$

$$mg \cdot l^{-1} \rightarrow mg \text{ per liter} = \frac{mg}{l}$$

$$\textcircled{4} n^4 \cdot \overset{\ominus}{n^{-3}} = \frac{n^4}{n^3} = \frac{\cancel{nnnn}}{\cancel{nnn}} = n$$

$$\textcircled{5} \frac{a^2b^3c^{-2}}{abc} = \frac{\cancel{aa} \cancel{bbb}}{\cancel{a} \cancel{b} c \cancel{cc}} = \frac{ab^2}{c^3}$$

$$\textcircled{5} \frac{a^{-2} b^2 c^{-1}}{a b^{-2} c^{-3}} = \frac{\cancel{bb} \cancel{bb} \cancel{ccc}}{aaa \cancel{c}}$$

$$\frac{b^2 b^2 c^3}{a a^2 c} = \frac{b^4 c^2}{a^3}$$

$$\textcircled{6} \frac{a^3 b^{-2}}{a^{-1} b^{-3}} = \frac{aaa \cancel{bbb}}{\cancel{bb}}$$

$$a^4 b$$

$$\textcircled{7} \frac{y^2 b^{-3} c}{y^3 b c^{-4}} = \frac{\cancel{yy} c \cancel{cccc}}{bbb \cancel{yyy} b}$$

$$\frac{c^5}{b^4 y}$$

x^{-1}

$$\textcircled{8} \left(\frac{2a}{5b^2} \right)^{-2}$$

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

$$\left(\frac{5b^2}{2a} \right)^2$$

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

$$\textcircled{9} \left(\frac{4a}{5b^3} \right)^{-2}$$

$$\left(\frac{4a}{5b^3} \right)^{-1} \cdot 2$$

$$\left(\frac{5b^3}{4a} \right)^2 = \frac{5b^3}{4a} \cdot \frac{5b^3}{4a} = \frac{25b^6}{16a^2}$$

$$\frac{5bbb \quad 5bbb \quad 25b^6}{4a \quad 4a} = \frac{25b^6}{16a^2}$$

8-21-19 3rd Trig

$$\frac{4x+6}{8} = \frac{4x}{8_2} + \frac{6^3}{8_4}$$

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

$$\frac{3n+12}{3_1} = n+4$$

$$\textcircled{1} \frac{10n+18}{12_6} = \frac{5n+9}{6}$$

$$\textcircled{2} \frac{6+\sqrt{8}}{2} = \frac{6+2\sqrt{2}}{2_1}$$

$$\sqrt{8} = \sqrt{2 \cdot 2 \cdot 2}$$

$$3+\sqrt{2}$$

$$\textcircled{3} \frac{10+\sqrt{-8}}{6} = \frac{10+2i\sqrt{2}}{6_3}$$

$$\frac{5+i\sqrt{2}}{3}$$

$$\textcircled{4} \frac{15 \pm \sqrt{75}}{5} = \frac{15 \pm 5\sqrt{3}}{5_1}$$

$$\sqrt{75} = \sqrt{3 \cdot 5 \cdot 5}$$

$$3 \pm \sqrt{3}$$

$$\textcircled{5} \frac{\sqrt{24} + \sqrt{28}}{2} = \frac{\cancel{2}\sqrt{6} + \cancel{2}\sqrt{7}}{\cancel{2}}$$

$$\sqrt{6} + \sqrt{7}$$

$$\times \frac{\sqrt{4} + \sqrt{9}}{2 + 3} = \frac{\sqrt{13}}{5}$$

$$\sqrt{\frac{\sqrt{4} \cdot \sqrt{9}}{2 \cdot 3}} = \frac{\sqrt{36}}{6} = 6$$

$$x \cdot x = \textcircled{x^2} \text{ or } 2x$$

$$5 \cdot 5 = \textcircled{5^2} \text{ or } 2 \cdot 5$$

Next section

$$4a^3 \cdot 2a^2 =$$

$$4aaa \cdot 2aa = 8a^5$$

$$\textcircled{1} \frac{6a^3}{2a^4} = \frac{\overset{3}{\cancel{6}} \cancel{a} \cancel{a} \cancel{a}}{\cancel{2}, \cancel{a} \cancel{a} \cancel{a}} = \frac{3}{a}$$

$$\textcircled{2} \frac{8a^2b^3}{10a^3b} = \frac{\overset{4}{\cancel{8}} \cancel{a} \cancel{a} \cancel{b} \cancel{b} \cancel{b}}{\cancel{10} \cancel{a} \cancel{a} \cancel{a} \cancel{b}} = \frac{4b^2}{5a}$$

$$a^{-3} = \frac{1}{a^3}$$

$$mg \ell^{-1} = \frac{mg}{\ell}$$

$$\textcircled{3} a^{-4} \cdot a^3 = \frac{a^3}{a^4} = \frac{\cancel{a} \cancel{a} \cancel{a}}{\cancel{a} \cancel{a} \cancel{a} a} = \frac{1}{a}$$

$$\textcircled{4} \frac{a^{-4} b^2}{a b^{-2}} = \frac{bb \ bb}{aaaa}$$

$$\downarrow$$

$$\frac{b^2 b^2}{a^4 a} \qquad \frac{b^4}{a^5}$$

$$\textcircled{5} \frac{a b^{-2} c^{-1}}{a^4 b^{-3} c} = \frac{a b^3}{a^4 b^2 c c}$$

$$\frac{\cancel{a} \cancel{bbb}}{\cancel{aaaa} \cancel{cc}}$$

$$\frac{b}{a^3 c^2}$$

$$\textcircled{6} \frac{4 a^{-2} b}{6 a^{-1} b^3} = \frac{4 a b}{6 a^2 b^3}$$

$$\frac{\overset{2}{\cancel{4}} a \cancel{b}}{\underset{3}{6} \cancel{a} \cancel{bbb}}$$

$$\frac{2}{3 a b^2}$$

$$x^{-1}$$

$$\textcircled{7} \left(\frac{2n}{1}\right)^{-1} = \frac{1}{2n}$$

$$\textcircled{8} \left(\frac{2b}{5y}\right)^{-1} = \frac{5y}{2b}$$

$$\textcircled{9} \left(\frac{2n^2}{3y}\right)^{-2}$$

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

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

$$\textcircled{10} \left(\frac{2}{5n^3}\right)^{-2}$$

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

$$\left(\frac{5n^3}{2}\right)^2 = \frac{5n^3}{2} \cdot \frac{5n^3}{2} = \frac{25n^6}{4}$$

$$\textcircled{11} \frac{n^3}{y^4} \cdot \frac{n^2}{y^2} = \frac{\begin{array}{c} nnn \\ yyy \\ yy \end{array}}{\begin{array}{c} yy \\ yy \end{array}}$$

$$\frac{n^5}{y^6}$$