

Rational or Irrational?

① $-2\sqrt{9} \cdot -3\sqrt{5}$

⑤ $-2\sqrt{9} \cdot 3\sqrt{\frac{36}{25}}$

② $-3\sqrt{7} \cdot 2\sqrt{7}$

⑥ $5\sqrt{6} + 1\sqrt{3}$

③ $-2\sqrt{2}(5\sqrt{8} + \sqrt{50})$

⑦ $\sqrt[3]{-8} + 25^{-\frac{1}{2}}$

④ $-2\sqrt{9} \cdot \frac{4}{5}$

⑧ $-2\sqrt{4} \cdot 3\sqrt{25}$

Simplify

⑨ $k^{\frac{2}{3}} (\sqrt[5]{k^3})$

⑪ $\frac{b^{\frac{2}{7}}}{\sqrt[5]{b^9}}$

Find x

⑬ $\frac{6^{\frac{5}{2}}}{6^{\frac{x}{4}}} = 4\sqrt{6}$

⑩ $r^{-\frac{1}{5}} \cdot \frac{1}{\sqrt[3]{r^2}}$

⑫ $\frac{(\sqrt[3]{s^2})^2}{s^{\frac{1}{5}} \cdot \sqrt[3]{s^5}}$

Simplify

⑭ $\left(\frac{18x^{-2}y^{-9}}{12x^5y^{-3}}\right)^2$

⑮ $(-3x^5y^{-2})^2(5x^{-2}y^{-4})$

EVALUATE

①⑥ $\sqrt[4]{16^5}$

①⑦ $64^{\frac{4}{3}}$

①⑧ $100^{-\frac{3}{2}}$

* LOOK OVER module problems & hw problems

- finding common multipliers from tables
- Solving equations with exponents

ex) $3(x-1)^4 + 1 = 52$

- problems with compound interest.

Answers

① $-2(3) \cdot -3\sqrt{5} = +18\sqrt{5}$ irrational ⑤ $-2(3) \cdot 3\left(\frac{6}{5}\right) = -6 \cdot \frac{18}{5} = \text{rat.}$

② $-6(\sqrt{49}) = -6 \cdot 7 = -42$ rat. ⑥ $5(4) + \sqrt{3} = 20 + \sqrt{3}$ irrat.

③ $-2\sqrt{2}(5\sqrt{8} + \sqrt{50})$
 $-10\sqrt{16} + -2\sqrt{100}$ rat. ⑦ $-2 + \frac{1}{\sqrt{25}} = -2 + \frac{1}{5}$ rat.

$-40 - 20 = -60$

④ $-2(3) \cdot \frac{4}{5} = -6 \cdot \frac{4}{5}$ rat. ⑧ $-2(2) \cdot 3(5)$ rat.

⑨ $K^{\frac{2}{3}} \cdot K^{\frac{3}{5}} \cdot \frac{5}{5} \cdot \frac{2}{3} + \frac{3}{5} \left(\frac{3}{3}\right) = \frac{10}{15} + \frac{9}{15}$ $K^{\frac{19}{15}}$ ⑩ $r^{-\frac{1}{5}} \cdot r^{-\frac{2}{3}} \cdot \frac{3}{3}$ $\frac{-1}{5} + \frac{-2}{3} \cdot \frac{5}{5}$

$\frac{-3}{15} + \frac{-10}{15} = \frac{-13}{15}$

$r^{-\frac{13}{15}}$

⑪ $b^{\frac{2}{7}} \cdot \frac{5}{5} \cdot \frac{2}{7} - \frac{9}{5} \cdot \frac{7}{7}$ $\frac{10}{35} - \frac{63}{35} = \frac{-53}{35}$

$b^{-\frac{53}{35}}$ or $\frac{1}{b^{\frac{53}{35}}}$

⑫ $\left(S^{\frac{2}{3}}\right)^2$ $\frac{S^{\frac{4}{3}}}{S^{\frac{28}{15}}} = \frac{1}{S^{\frac{8}{15}}}$

$\frac{3}{15} + \frac{25}{15} \cdot \frac{5}{5} \cdot \frac{4}{3} - \frac{28}{15} = \frac{-8}{15}$

$\frac{1}{S^{\frac{8}{15}}}$

⑬ $\frac{5}{2} - \frac{x}{4} = \frac{1}{4}$
 $\frac{10}{4} - \frac{x}{4} = \frac{1}{4}$
 $4 - \frac{x}{4} = \frac{-9}{4}$

$x = 9$

⑭ $\left(\frac{18y^3}{2 \cdot 12x^5x^2y^4}\right)^2 = \frac{9}{4y^{12}x^{14}}$

$$\frac{1}{2} \cdot \frac{5}{4} = \frac{5}{8} = 26$$

$$\frac{1}{4} = 4$$

$$(15) (9x^{10}y^{-4})(5x^{-2}y^{-6})$$

$$\frac{45x^8}{y^{10}}$$

$$(16) \sqrt[4]{16^5}$$

$$2^5 = 32$$

$$(17) \sqrt[3]{64^4}$$
$$4^4 = 256$$

$$(18)$$

$$\frac{1}{\sqrt{100^3}} = \frac{1}{10^3} = \frac{1}{1000}$$