Date: / /

25/06/2021 [SBB Learning Leadership Academy]

MATHEMATICS

Class: 8 Weekend Assignment 1

Rational Numbers & Exponents

(1) Distributive property of Multiplication over ~~add~~ Subtraction

(2) $\frac{(24)^{-1}}{y} = 3^{-1}$

$\frac{-1}{24y} = \frac{1}{3}$

$y = \frac{-3}{24}$

$\boxed{y = \frac{-1}{8}}$

(3) $9.573 \times 10^{-4} = 0.0009573$

(4) $-\frac{3}{5}$

(5) (c) $(-2)^5$

(6) (d) none of the above. (not defined)

(7) False (8) False

(9) True (10) False

(11) (i) Quotient Law

$\frac{a^m}{a^n} = a^{m-n}$

(ii) 1 and -1

(iii) $(a^m)^n = a^{mn}$

(iv) Zero (0)

12) $\frac{22}{7} \div x = -\frac{11}{24}$

$\frac{22}{7} \times \frac{1}{x} = -\frac{11}{24}$

$x = -\left[\frac{22}{7} \times \frac{24}{11}\right]$

$= -\frac{48}{7}$

$\therefore x = -6\frac{6}{7}$

13 (a) $27^{4/3} + (32)^{0.8} = (3^3)^{4/3} + (2^5)^{8/10}$ $(a^m)^n = a^{mn}$ powerlaw

$= 3^4 + 2^4$

(b) $\left(\frac{16}{81}\right)^2 \times \frac{3}{2} = \left(\frac{2^4}{3^4}\right)^2 \times \frac{3}{2}$

$= \frac{2^8}{3^8} \times \frac{3}{2}$

$= \frac{2^{8-1}}{3^{8-1}}$ $\left[\frac{a^m}{a^n} = a^{m-n}\right]$

$= \left(\frac{2^7}{3}\right)$

Date: / /

(c) $\left[1-\left\{1-(1-n)^{-1}\right\}^{-1}\right]^{-1}$

$= \left[1-\left\{1-\frac{1}{1-n}\right\}^{-1}\right]^{-1}$

$= \left[1-\left\{\frac{1-n-1}{1-n}\right\}^{-1}\right]^{-1}$

$= \left[1-\left(\frac{-n}{1-n}\right)^{-1}\right]^{-1}$

$= \left[1+\frac{1-n}{n}\right]^{-1}$

$= \left[\frac{n+1-n}{n}\right]^{-1}$

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

$= n$

(14) (a) $\frac{-1}{4}$ and $\frac{-2}{5}$

$\frac{-1}{4} \times \frac{10}{10} = \frac{-10}{40}$

$\frac{-2}{5} \times \frac{8}{8} = \frac{-16}{40}$

$\frac{-16}{40}, \frac{-15}{40}, \frac{-14}{40}, \frac{-13}{40}, \frac{-12}{40}, \frac{-11}{40}, \frac{-10}{40}$

Date: / /

⑭ 9 and 10

$$\frac{9}{1} \times \frac{7}{7} = \frac{63}{7}$$

$$\frac{10}{7} \times \frac{7}{70} = \frac{70}{7}$$

$$\frac{63}{7}, \frac{64}{7}, \frac{65}{7}, \frac{66}{7}, \frac{67}{7}, \frac{68}{7}, \frac{69}{7}, \frac{70}{7}$$

15 $1176 = 2^p \times 3^q \times 7^r$

2	1176
2	588
2	294
3	147
7	49
7	7
	1

$1176 = 2^3 \times 3 \times 7^2$

$p = 3$

$q = 1$

$r = 2$