Answers Sheet

Fractional and Negative Indices

1. Flip / Reciprocal
   = 1 / 4

2.
   = 7 / 2

3.
   = 1 / 8

4.
   = 1 / 2

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5. Square Root
   = 9

6.
   = 5

7.
   = 11

8.
   = 8

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9. Flip and Square Root
   = 1 / 7

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10. Cube Root

= 2

11.

= 3

12.

= 5

13.

= 6

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14. Flip and Cube Root

= 1 / 6

15.

$= (2)^{-2}$

$= 4^{-1}$

= 1 / 4

16.

$= (4)^{2}$

= 16

17.

$= (3)^{-2}$

$= 9^{-1}$

= 1 / 9

18.

$= (6)^{-2}$

$= 36^{-1}$

$= 1 / 36$

19.

$= (3x^2)^2$

$= 9\,x^4$

20.

$= (2 / 3)^{-2}$

$= (4 / 9)^{-1}$

$= 9 / 4$

21.

$= (3 / 8)^{-3}$

$= (27 / 512)^{-1}$

$= 512 / 27$

22.

$= (5 / 6)^{-2}$

$= (25 / 36)^{-1}$

$= 36 / 25$

23.

$= (9 / 7)^{-3}$

$= (729 / 343)^{-1}$

$= 343 / 729$

24.

$= \sqrt[4]{(81 \times 10^8)}$

$= 3 \times 10^2$

$= 300$

25.

$$= \sqrt[3]{(125 \times 10^{12})}$$
$$= 5 \times 10^4$$
$$= 50{,}000$$

26.

$$5^1 \times 5^{1/2} = 5^n$$
$$5^{3/2} = 5^n$$
$$= 3/2$$

27.

$$7^1 \times 7^{3/2} = 7^n$$
$$7^1 \times 7^{3/2} = 7^n$$
$$7^{5/2} = 7^n$$
$$= 5/2$$

28.
i) $\quad p \times q$
ii) $\quad p/2$
iii) $\quad p^2$

29.

$$4^{-n} = 1/2$$
$$4^n = 2$$
$$(4^n)^2 = 4$$

30.

$$3^{-n} = 1/2$$
$$(3^n) = 2$$
$$(3^n)^3 = 8$$

31.

$4^n = 32$

$(2^2)^n = 32$

$2^{2n} = 2^5$

$2n = 5$

$n = 5/2$

32.

$25^{-n} = 125$

$5^{-2n} = 5^3$

$-2n = 3$

$n = -1.5$