

JASWANT MODERN SR. SEC. SCHOOL VII (WORKSHEET- 1)

SUB- MATHEMATICS (WINTER BREAK) 2023

PRACTICE ALL THE EXERCISES GIVEN IN YOUR BOOKS FIRST AND THEN ATTEMPT THE WORKSHEET.

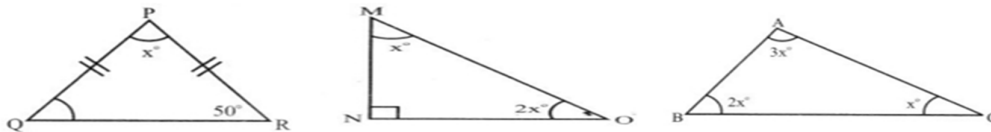
1. Solve the following equations:

- (a) $4 + 5(m - 1) = 34$ (b) $0 = 16 + 4(n - 6)$
 (c) $\frac{3x}{8} = 27$ (d) $5x + 3 = \frac{4}{3}(1 + x)$ (e) $1 - 2(2 - y) = 7$
 (f) $0.15(5x - 2) = 0.4(x + 1)$ (g) $\frac{z}{3} + 3 = 30$ (h) $\frac{x}{4} - 4 = 4$

2. Find the value of:

- (a) $2^\circ \times 3^\circ \times 4^\circ$ (b) $(7^\circ \div 30) \times (8^\circ - 5^\circ)$ (c) $4^\circ \times 6^\circ + 100^\circ$
 (d) $(3^\circ + 2^\circ) \times 5^\circ$ (e) $(2a)^4$

3. Find the value of x with reason:



4. Find the value of x. Mention the laws used:

5. $\left\{\frac{2}{5}\right\} = 5^x$ (b) $(2^6 \div 2^{-3}) \times 2^{14} = 2^x$

5. Use power notation to express each of the following:

- a. $(-2/3) \times (-2/3) \times (-2/3) \times (-2/3)$
 b. $n \times n \times n \times n \times n \times n \times n$
 c. $(5 \times 5 \times 5 \times 5 \times 5 \times 5) / (5 \times 5 \times 5 \times 5)$

6. Evaluate:

- a. $3^6 - 2^5$ b. $4^3 + 5^3$ c. $8^3 \times 2^4$ d. $3^7 \div 9^2$ e. $3^5 \times 4^7$
 f. $(5^3 \times 2^2) \div (5^2 \times 2)$ g. $(3/2)^5 \times 16 \times (2/3)^4 \times 6^3 \times 8$
 h. $(4/7)^2 \times (1/5)^2 \times 35 / 64$ i. $(1/3)^4 \times (-27/4)^2 \times (-8/3)^2$
 j. $[(1/4)^3]^2 \div [(1/4)^2]^3$ k. $4^2 \times 4^3 / 2^6$ l. $(-1/3)^2 \times (-1/3)^3 \times (-1/3)^0$

7. Simplify and write the answer in scientific notation:

- (a) $(5 \times 10^3) \times (3 \times 10^5)$ (b) $\frac{4.5 \times 10^8}{0.9 \times 10^5}$

8. Find m for the following:

(a) $\left(\frac{8}{9}\right)^5 \times \left(\frac{9}{4}\right) = (2)^m$ (b) $(7)^3 \div (2)^m = \left(\frac{7}{2}\right)^3$

9. Write in the standard form:

- (a) The distance between Earth and Moon is 384,000 km.
 (b) Speed of light in vacuum is 300,000,000 m/s.
 (c) 0.0034256

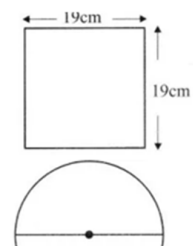
10. Perimeter of a square park is 2000m. Find its area.

11. A rectangular plot is 75 metre long and 60 metre broad. It has a path of width 2 metre all around it inside. Find the area of the path.

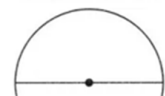
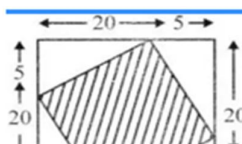
12. From a circular sheet of radius 4cm, a circle of radius 3cm is removed. Find the area of the remaining sheet (Take $\pi = 3.14$).

13. The ratio of radii of two circles is 4:5. Find the ratio of their areas.

14. A shopkeeper sells two kinds of 'Till Patti'. A square 'Till Patti' of side 19 cm cost ₹ 25 and a circular 'Till Patti' of diameter 21cm cost ₹ 25 which Till Patti is a better deal and why?



15. Find the area of the shaded region in the following figures:



16. Pallavi spends ₹ x daily and saves ₹ y per day. What is her income after 3 weeks?
17. If $P = -10$, find the value of $P^2 - 2P - 100$.
18. If $a + b = 6$, then find the value of $\frac{1}{2}a + \frac{1}{2}b$
19. Add $4x^2y$, $8x^2y$ and $-2x^2y$
20. How many diagonals we can draw from one vertex of a polygon of 'n' sides?
21. How many diagonals we can draw from one vertex of a heptagon?
22. What should be added to $a^2 + ab + b^2$ to obtain $4ab + b^2$?
23. The length of a rectangular field is 6m less than three times its breadth. Find the dimensions of the rectangle if its perimeter is 148 m.
24. Collect like terms and simplify the expression:
 $m^2 - 9m + 5m - 4m^2 - 7m + 10$
25. What should be subtracted from $a^3 - 4a^2 + 5a$ to obtain $a^2 - 2a + 1$?
26. From the sum of $5y^2 + 7yz$, $-5y^2 - yz - z^2$ and $4yz + 3z^2$, subtract the sum of $5y^2 - 3z^2$ and $8y^2 + yz - 6z^2$.