**Q1.** **Find the squares of each of the following, using algebraic identities:**

a. $(0.3x + 1.5y)^2$ = _____

b. $\left(\dfrac{2x}{3} - \dfrac{5y}{9}\right)$ = _____

**Q2.** **Simplify the following, using algebraic identities:**

a. $\left(2\sqrt{2}p - \dfrac{1}{2\sqrt{2}p}\right)^2$ = _____

b. $(6x^2 - y)(6x^2 + y)$ = _____

c. $\left(\dfrac{x}{2} + \dfrac{y}{3}\right)^2$ = _____

d. $\left(\dfrac{1}{3}a^2 + \dfrac{1}{5}b^2\right)\left(\dfrac{1}{3}a^2 - \dfrac{1}{5}b^2\right)$ = _____

**Q3.** **Amit was asked to find the square of 199.**

He used the following method to get the solution:

$(199)^2 = (100 + 99)^2$

Though Amit got the correct answer, show him an easier and faster method of evaluating the same by filling in the blanks with the correct numbers:

Kunal's solution: $(199)^2 = ($_____ $-$ _____$)^2$ = _____

**Q4.** **Evaluate the following using identities:**

a. $310 \times 290$ = _____

b. $2.1 \times 1.9$ = _____

**Q5. Find the value of $x$ in the following:**

a. $\dfrac{2.8 \lozenge 2.8 - 1.2 \lozenge 1.2}{4} = 2x$

$x = $ _____

b. $\dfrac{717 \lozenge 717 - 83 \lozenge 83}{634} = 1000 - x$

$x = $ _____

**Q6. Fill in the blanks using algebraic identities:**

a. $4x^2 - xy + \dfrac{y^2}{16}$  $= ($_____$)^2$

b. $81a^2 + 144ab^2 + 64b^4$  $= ($_____$)^2$

**Q7. Find the value of $x^2 + \dfrac{1}{x^2}$, if $x - \dfrac{1}{x} = 2$.**

Answer: _____

**Q8. Find the value of $x^4 + \dfrac{1}{x^4}$, if $x + \dfrac{1}{x} = 4$.**

Answer: _____

**Q9. If $x^2 + 4y^2 = 1$ and $xy = 20$, find the value of $(x + 2y)$.**

$x + 2y = $ \_\_\_\_\_

**Q10. Each student of a class donated the same amount of money as there were students in the class. If the total amount collected was ₹ $(4x^2 - 32xy + 64y^2)$, find the number of students in the class.**

Number of students in the class = _____

## Answers

1. a. $0.09x^2 + 0.9xy + 2.25y^2$;  b. $\dfrac{4}{9}x^2 - \dfrac{20}{27}xy + \dfrac{25}{81}y^2$

2. a. $8p^2 - 2 + \dfrac{1}{8p^2}$;  b. $36x^4 - y^2$;  c. $\dfrac{x^2}{4} + \dfrac{xy}{3} + \dfrac{y^2}{9}$;  d. $\dfrac{a^4}{9} - \dfrac{b^4}{25}$

3. $(199)^2 = (\underline{\ 200\ } - \underline{\ 1\ })^2 = \underline{39601}$

4. a. 89,900;  b. 3.99

5. a. x = 0.8;  b. x = 200

6. a. $(2x - \dfrac{y}{4})$;  b. $(9a + 8b^2)$

7. 6

8. 194

9. 9

10. 2x − 8y