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## COMBINING LIKE TERMS WORKSHEET

1)  $3a + 5 - 7a = \underline{\hspace{2cm}}$

2)  $-3x - 6 + 4x \cdot 9 + 4 = \underline{\hspace{2cm}}$

3)  $(7x^4 - 4) + (9x^4 - 10 - x^5) = \underline{\hspace{2cm}}$

4)  $-7(3x + 1) - \frac{1}{4}(12x - 24) = \underline{\hspace{2cm}}$

5)  $3.5x - 2 + 5.2x - 3 = \underline{\hspace{2cm}}$

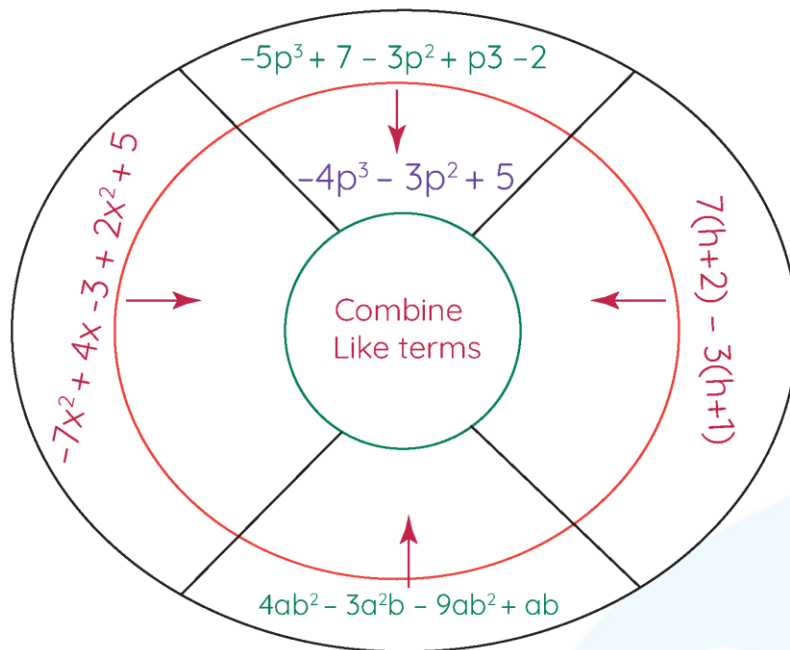
6) Jonathan had \$  $-3x^2 - 17x + 19$  in his bank account. Now he deposited \$  $-4x^3 + 7x - 25$ . What is his net balance?



7) If “a” represents the number of apples and “b” represents the number of oranges, then write an expression for the following figure and combine the like terms.



8) Combine the like terms and put your answer as shown for one of the following.



9)  $-7x^2y - 19xy + 20xy^2 + 4x^2y - 20xy + 8xy^2 - 3xy + 12xy^2 + x^3y =$

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10)  $(a+b)^3 - (a-b)^3 =$  -----

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- Gary Schwartz

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- Kirk Riley

"I appreciate the effort that miss Nitya puts in to help my daughter understand the best methods and to explain why she got a problem incorrect. She is extremely patient and generous with Miranda."

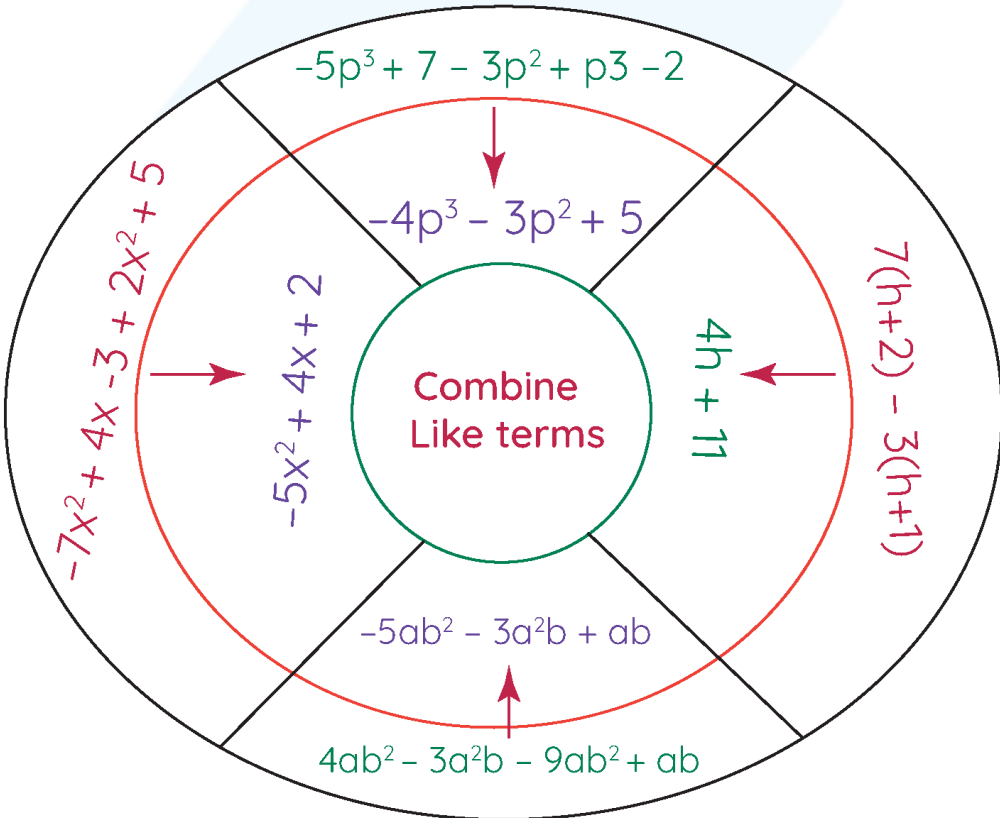
- Barbara Cabrera

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## ANSWERS

1)	$-4a + 5$
2)	$33x - 2$
3)	$-x^5 + 16x^4 - 14$
4)	$-24x - 1$
5)	$8.7x - 5$
6)	$-4x^3 - 3x^2 - 10x - 6$
7)	$\frac{11}{2}a + \frac{3}{2}b$
8)	
9)	$-3x^2y - 42xy + 40xy^2 + x^3y$
10)	$6a^2b + 2b^3$

**Solutions:**

1.  $3a + 5 - 7a = \underline{\hspace{2cm}}$

Solution:

$$3a + 5 - 7a = (3a - 7a) + 5 = -4a + 5$$

2.  $-3x - 6 + 4x \cdot 9 + 4 = \underline{\hspace{2cm}}$

Solution:

$$-3x - 6 + 4x \cdot 9 + 4 = -3x - 6 + 36x + 4 = 33x - 2$$

3.  $(7x^4 - 4) + (9x^4 - 10 - x^5) = \underline{\hspace{2cm}}$

Solution:

$$(7x^4 - 4) + (9x^4 - 10 - x^5) = -x^5 + (7x^4 + 9x^4) - 4 - 10 = -x^5 + 16x^4 - 14$$

4.  $-7(3x + 1) - \frac{1}{4}(12x - 24) = \underline{\hspace{2cm}}$

Solution:

$$-7(3x + 1) - \frac{1}{4}(12x - 24) = -21x - 7 - 3x + 6 = -24x - 1$$

5.  $3.5x - 2 + 5.2x - 3 = \underline{\hspace{2cm}}$

Solution:

$$3.5x - 2 + 5.2x - 3 = (3.5x + 5.2x) + (-2 - 3) = 8.7x - 5$$



6. Jonathan had \$  $-3x^2 - 17x + 19$  in his bank account. Now he deposited \$  $-4x^3 + 7x - 25$ . What is his net balance?

Solution:

The net balance can be obtained by adding the given two algebraic expressions.

$$\begin{aligned} & (-3x^2 - 17x + 19) + (-4x^3 + 7x - 25) \\ &= -4x^3 - 3x^2 + (-17x + 7x) + (19 - 25) \\ &= -4x^3 - 3x^2 - 10x - 6 \end{aligned}$$

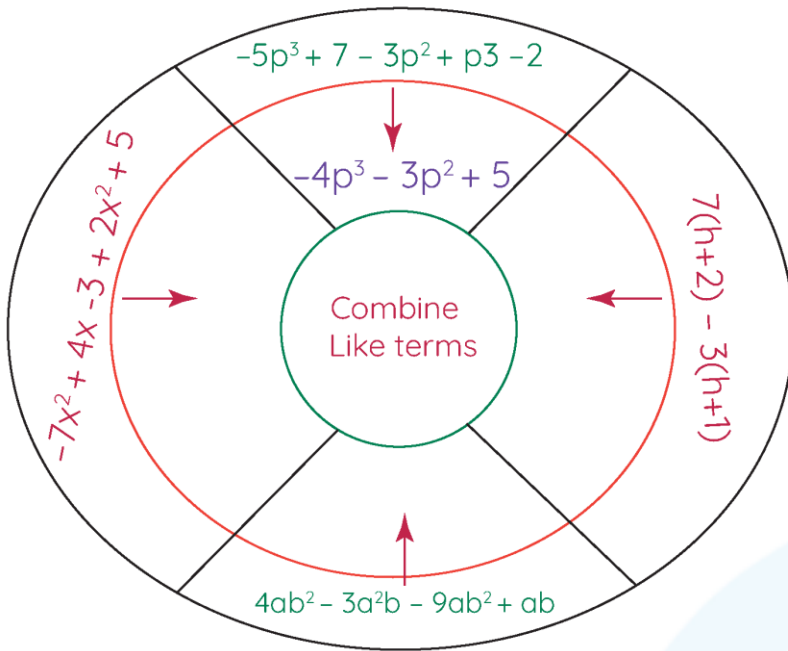
7. If “a” represents the number of apples and “b” represents the number of oranges, then write an expression for the following figure and combine the like terms.



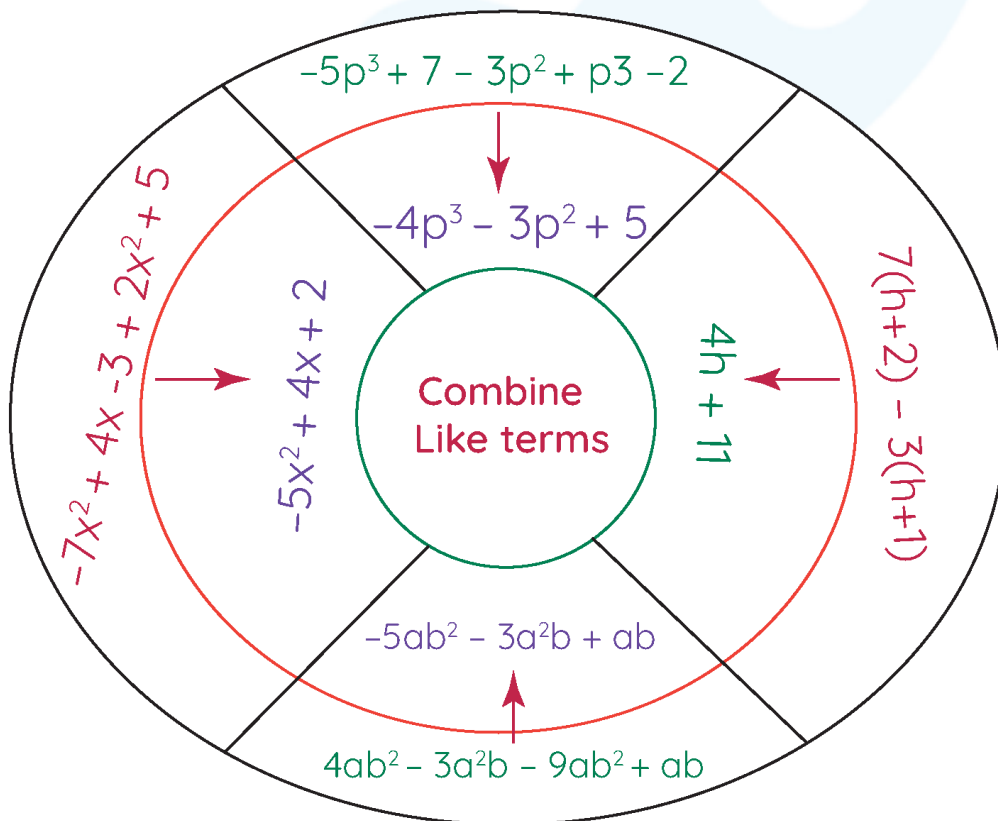
Solution:

$$3a + 1\frac{1}{2}b + 2\frac{1}{2}a = \frac{11}{2}a + \frac{3}{2}b$$

8. Combine the like terms and put your answer as shown for one of the following.



Solution:



9.  $-7x^2y - 19xy + 20xy^2 + 4x^2y - 20xy + 8xy^2 - 3xy + 12xy^2 + x^3y =$

-----

Solution:



$$\begin{aligned} & -7x^2y - 19xy + 20xy^2 + 4x^2y - 20xy + 8xy^2 - 3xy + 12xy^2 + x^3y \\ &= (-7x^2y + 4x^2y) + (-19xy - 20xy - 3xy) + (20xy^2 + 8xy^2 + 12xy^2) + x^3y \\ &= -3x^2y - 42xy + 40xy^2 + x^3y \end{aligned}$$

10.  $(a+b)^3 - (a-b)^3 = \text{-----}$

Solution:

$$\begin{aligned} & (a+b)^3 - (a-b)^3 \\ &= a^3 + 3a^2b + 3ab^2 + b^3 - (a^3 - 3a^2b + 3ab^2 - b^3) \\ &= a^3 + 3a^2b + 3ab^2 + b^3 - a^3 + 3a^2b - 3ab^2 + b^3 \\ &= 6a^2b + 2b^3 \end{aligned}$$

## FUN FACT

1. Like terms are terms with the same variable parts.
2. Combining like terms means adding or subtracting like terms.
3. Addition and subtraction should be performed with like terms only whereas there is no such rule with multiplication and division.

