EXERCISE 19(A)

1. Fill in the blanks:
(i) 5 + 4 = …….. and 5x + 4x = ……
(ii) 12 + 18 = ……. and $12x^2y + 18x^2y$ = ……..
(iii) 7 + 16 = …….. and 7a + 16b = …….
(iv) 1 + 3 = ……. and $x^2y + 3xy^2$ = ……
(v) 7 – 4 = …… and 7ab – 4ab = ……
Solution:
(i) 5 + 4 = **9** and 5x + 4x = **9x**
(ii) 12 + 18 = **30** and $12x^2y + 18x^2y$ = **$30x^2y$**
(iii) 7 + 16 = **23** and 7a + 16b = **7a + 16b**
(iv) 1 + 3 = **4** and $x^2y + 3xy^2$ = **$x^2y + 3xy^2$**
(v) 7 – 4 = **3** and 7ab – 4ab = **3ab**

2. Fill in the blanks:
(i) The sum of -2 and -5 = …… and the sum of -2x and -5x = …….
(ii) The sum of 8 and -3 = …… and the sum of 8ab and -3ab = ……
(iii) The sum of -15 and -4 = …… and the sum of -15x and -4y = ……..
(iv) 15 + 8 + 3 = …….. and 15x + 8y + 3x = ……
(v) 12 – 9 + 15 = …… and 12ab – 9ab + 15ba = …….
Solution:
(i) The sum of -2 and -5 = **- 7** and the sum of -2x and -5x = **- 7x**
(ii) The sum of 8 and -3 = **5** and the sum of 8ab and -3ab = **5ab**
(iii) The sum of -15 and -4 = **- 19** and the sum of -15x and -4y = **- 15x – 4y**
(iv) 15 + 8 + 3 = **26** and 15x + 8y + 3x = **18x + 8y**
(v) 12 – 9 + 15 = **18** and 12ab – 9ab + 15ba = **18ab**

3. Add:
(i) 8xy and 3xy
(ii) 2xyz, xyz and 6xyz
(iii) 2a, 3a and 4b
(iv) 3x and 2y
(v) 5m, 3n and 4p
Solution:
(i) 8xy and 3xy
The addition of 8xy and 3xy is calculated as follows
8xy + 3xy = 11xy
(ii) 2xyz, xyz and 6xyz

The addition of 2xyz, xyz and 6xyz is calculated as follows
2xyz + xyz + 6xyz = 9xyz
(iii) 2a, 3a and 4b
The addition of 2a, 3a and 4b is calculated as follows
2a + 3a + 4b = 5a + 4b
(iv) 3x and 2y
The addition of 3x and 2y is calculated as follows
3x + 2y = 3x + 2y
(v) 5m, 3n and 4p
The addition of 5m, 3n and 4p is calculated as follows
5m + 3n + 4p = 5m + 3n + 4p

4. Evaluate:
(i) 6a – a – 5a – 2a
(ii) 2b – 3b – b + 4b
(iii) 3x – 2x – 4x + 7x
(iv) 5ab + 2ab – 6ab + ab
(v) 8x – 5y – 3x + 10y
Solution:
(i) 6a – a – 5a – 2a
The value of given expression is calculated as below
6a – a – 5a – 2a = (6 – 1 – 5 – 2) a
We get,
= (5 – 5 – 2) a
= - 2a
Therefore, 6a – a – 5a – 2a = - 2a
(ii) 2b – 3b – b + 4b
The given of given expression is calculated as below
2b – 3b – b + 4b = 2b + 4b – (3 + 1) b
We get,
= 6b – 4b
= 2b
Therefore, 2b – 3b – b + 4b = 2b
(iii) 3x – 2x – 4x + 7x
The given expression is calculated as below
3x – 2x – 4x + 7x = 3x + 7x – 2x – 4x
= (3 + 7) x – (2 + 4) x
= 10x – 6x
= 4x

Therefore, 3x – 2x – 4x + 7x = 4x
(iv) 5ab + 2ab – 6ab + ab
The given expression is calculated as below
5ab + 2ab – 6ab + ab = 5ab + 2ab + ab – 6ab
We get,
= 8ab – 6ab
= 2ab
Therefore, 5ab + 2ab – 6ab + ab = 2ab
(v) 8x – 5y – 3x + 10y
The given expression is calculated as below
8x – 5y – 3x + 10y = 8x – 3x + 10y – 5y
= 5x + 5y
Therefore, 8x – 5y – 3x + 10y = 5x + 5y

5. Evaluate:
(i) -7x + 9x + 2x – 2x
(ii) 5ab – 2ab – 8ab + 6ab
(iii) -8a – 3a + 12a + 13a – 6a
(iv) 19abc – 11abc – 12abc + 14abc
Solution:
(i) -7x + 9x + 2x – 2x
The values of given expression is calculated as follows
-7x + 9x + 2x – 2x = 9x + 2x – 7x – 2x
= 11x – 9x
We get,
= 2x
Hence, -7x + 9x + 2x – 2x = 2x
(ii) 5ab – 2ab – 8ab + 6ab
The value of given expression is calculated as follows
5ab – 2ab – 8ab + 6ab = 5ab + 6ab – 2ab – 8ab
We get,
= 11ab – 10ab
= ab
Hence, 5ab – 2ab – 8ab + 6ab = ab
(iii) -8a – 3a + 12a + 13a – 6a
The value of given expression is calculated as follows
-8a – 3a + 12a + 13a – 6a = 12a + 13a – (8a + 3a + 6a)
= 25a – 17a
= 8a

Hence, -8a – 3a + 12a + 13a – 6a = 8a
(iv) 19abc – 11abc – 12abc + 14abc
The value of given expression is calculated as follows
19abc – 11abc – 12abc + 14abc = abc (19 – 11 – 12 + 14)
= abc (33 – 23)
= 10abc
Hence, 19abc – 11abc – 12abc + 14abc = 10abc

6. Subtract the first term from the second:
(i) 4ab, 6ba
(ii) 4.8b, 6.8b
(iii) 3.5abc, 10.5abc
(iv) 3(1 / 2) mn, 8(1 / 2)nm
Solution:
(i) 4ab, 6ba
The subtraction of first term from the second term is calculated as below
6ba – 4ab = 2ab
(ii) 4.8b, 6.8b
The subtraction of first term from the second term is calculated as below
6.8b – 4.8b = 2b
(iii) 3.5abc, 10.5abc
The subtraction of first term from the second term is calculated as below
10.5abc – 3.5abc = 7abc
(iv) 3(1 / 2) mn, 8(1 / 2)nm
The subtraction of first term from the second term is calculated as below
8(1 / 2)nm – 3 (1 / 2) mn = (17 / 2)nm – (7 / 2)mn
We get,
= [(17mn – 7mn) / 2]
= (10 / 2)mn
= 5mn

7. Simplify:
(i) $2a^2b^2 + 5ab^2 + 8a^2b^2 – 3ab^2$
(ii) 4a + 3b – 2a – b
(iii) 2xy + 4yz + 5xy + 3yz – 6xy
(iv) ab + 15ab – 11ab – 2ab
(v) $6a^2 – 3b^2 + 2a^2 + 5b^2 – 4a^2$
Solution:

(i) $2a^2b^2 + 5ab^2 + 8a^2b^2 – 3ab^2$
The simplified form of the given expression is calculated as follows
$2a^2b^2 + 5ab^2 + 8a^2b^2 – 3ab^2 = 2a^2b^2 + 8a^2b^2 + 5ab^2 – 3ab^2$
We get,
$= 10a^2b^2 + 2ab^2$
Therefore, $2a^2b^2 + 5ab^2 + 8a^2b^2 – 3ab^2 = 10a^2b^2 + 2ab^2$
(ii) $4a + 3b – 2a – b$
The simplified form of the given expression is calculated as follows
$4a + 3b – 2a – b = 4a – 3a + 3b – b$
$= 2a + 2b$
Therefore, $4a + 3b – 2a – b = 2a + 2b$
(iii) $2xy + 4yz + 5xy + 3yz – 6xy$
The simplified form of the given expression is calculated as follows
$2xy + 4yz + 5xy + 3yz – 6xy = 2xy + 5xy – 6xy + 4yz + 3yz$
$= xy + 7yz$
Therefore, $2xy + 4yz + 5xy + 3yz – 6xy = xy + 7yz$
(iv) $ab + 15ab – 11ab – 2ab$
The simplified form of the given expression is calculated as follows
$ab + 15ab – 11ab – 2ab = 16ab – 13ab$
$= 3ab$
Therefore, $ab + 15ab – 11ab – 2ab = 3ab$
(v) $6a^2 – 3b^2 + 2a^2 + 5b^2 – 4a^2$
The simplified form of the given expression is calculated as follows
$6a^2 – 3b^2 + 2a^2 + 5b^2 – 4a^2 = 6a^2 + 2a^2 – 4a^2 + 5b^2 – 3b^2$
We get,
$= 4a^2 + 2b^2$
Therefore, $6a^2 – 3b^2 + 2a^2 + 5b^2 – 4a^2 = 4a^2 + 2b^2$