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1. If m = 2, find the value of:

(i) m – 2

Solution:-

From the question it is given that m = 2

Then, substitute the value of m in the question

= 2 -2

= 0

(ii) 3m – 5

Solution:-

From the question it is given that m = 2

Then, substitute the value of m in the question

= (3 × 2) – 5

= 6 – 5

= 1

(iii) 9 – 5m

Solution:-

From the question it is given that m = 2

Then, substitute the value of m in the question

= 9 – (5 × 2)

= 9 – 10

= - 1

(iv) $3m^2 – 2m – 7$

Solution:-

From the question it is given that m = 2

Then, substitute the value of m in the question

= $(3 \times 2^2) – (2 \times 2) - 7$

= (3 × 4) – (4) - 7

= 12 – 4 -7

= 12 – 11

= 1

(v) (5m/2) – 4

Solution:-

From the question it is given that m = 2

Then, substitute the value of m in the question

= ((5 × 2)/2) – 4

= (10/2) – 4

= 5 – 4

= 1

2. If p = – 2, find the value of:

(i) 4p + 7

Solution:-

From the question it is given that p = -2

Then, substitute the value of p in the question

= (4 × (-2)) + 7

= -8 + 7

= -1

(ii) $– 3p^2 + 4p + 7$

Solution:-

From the question it is given that p = -2

Then, substitute the value of p in the question

= $(-3 \times (-2)^2) + (4 \times (-2)) + 7$

= (-3 × 4) + (-8) + 7

= -12 – 8 + 7

= -20 + 7

= -13

(iii) $– 2p^3 – 3p^2 + 4p + 7$

Solution:-

From the question it is given that p = -2

Then, substitute the value of p in the question

= $(-2 \times (-2)^3) - (3 \times (-2)^2) + (4 \times (-2)) + 7$

= (-2 × -8) - (3 × 4) + (-8) + 7

= 16 – 12 – 8 + 7

= 23 – 20

= 3

3. Find the value of the following expressions, when x = –1:

(i) 2x – 7

Solution:-

From the question it is given that x = -1

Then, substitute the value of x in the question

= (2 × -1) – 7

= - 2 – 7

= - 9

(ii) – x + 2

Solution:-

From the question it is given that x = -1

Then, substitute the value of x in the question

= - (-1) + 2

= 1 + 2

= 3

(iii) $x^2 + 2x + 1$

Solution:-

From the question it is given that x = -1

Then, substitute the value of x in the question

= $(-1)^2$ + (2 × -1) + 1

= 1 – 2 + 1

= 2 – 2

= 0

(iv) $2x^2 – x – 2$

Solution:-

From the question it is given that x = -1

Then, substitute the value of x in the question

= (2 × $(-1)^2$) – (-1) – 2

= (2 × 1) + 1 – 2

= 2 + 1 – 2

= 3 – 2

= 1

4. If a = 2, b = – 2, find the value of:

(i) $a^2 + b^2$

Solution:-

From the question it is given that a = 2, b = -2

Then, substitute the value of a and b in the question

$= (2)^2 + (-2)^2$

$= 4 + 4$

$= 8$

(ii) $a^2 + ab + b^2$

Solution:-

From the question it is given that a = 2, b = -2

Then, substitute the value of a and b in the question

$= 2^2 + (2 \times -2) + (-2)^2$

$= 4 + (-4) + (4)$

$= 4 – 4 + 4$

$= 4$

(iii) $a^2 – b^2$

Solution:-

From the question it is given that a = 2, b = -2

Then, substitute the value of a and b in the question

$= 2^2 – (-2)^2$

$= 4 – (4)$

$= 4 – 4$

$= 0$

5. When a = 0, b = – 1, find the value of the given expressions:

(i) 2a + 2b

Solution:-

From the question it is given that a = 0, b = -1

Then, substitute the value of a and b in the question

$= (2 \times 0) + (2 \times -1)$

$= 0 – 2$

$= -2$

(ii) $2a^2 + b^2 + 1$

Solution:-

From the question it is given that a = 0, b = -1
Then, substitute the value of a and b in the question
$= (2 \times 0^2) + (-1)^2 + 1$
$= 0 + 1 + 1$
$= 2$

(iii) $2a^2b + 2ab^2 + ab$
Solution:-
From the question it is given that a = 0, b = -1
Then, substitute the value of a and b in the question
$= (2 \times 0^2 \times -1) + (2 \times 0 \times (-1)^2) + (0 \times -1)$
$= 0 + 0 + 0$
$= 0$

(iv) $a^2 + ab + 2$
Solution:-
From the question it is given that a = 0, b = -1
Then, substitute the value of a and b in the question
$= (0^2) + (0 \times (-1)) + 2$
$= 0 + 0 + 2$
$= 2$

6. Simplify the expressions and find the value if x is equal to 2
(i) x + 7 + 4 (x – 5)
Solution:-
From the question it is given that x = 2
We have,
$= x + 7 + 4x – 20$
$= 5x + 7 – 20$
Then, substitute the value of x in the equation
$= (5 \times 2) + 7 – 20$
$= 10 + 7 – 20$
$= 17 – 20$
$= - 3$

(ii) 3 (x + 2) + 5x – 7
Solution:-

From the question it is given that x = 2
We have,
= 3x + 6 + 5x - 7
= 8x - 1
Then, substitute the value of x in the equation
= (8 × 2) – 1
= 16 – 1
= 15

(iii) 6x + 5 (x – 2)
Solution:-
From the question it is given that x = 2
We have,
= 6x + 5x – 10
= 11x - 10
Then, substitute the value of x in the equation
= (11 × 2) – 10
= 22 – 10
= 12

(iv) 4(2x – 1) + 3x + 11
Solution:-
From the question it is given that x = 2
We have,
= 8x – 4 + 3x + 11
= 11x + 7
Then, substitute the value of x in the equation
= (11 × 2) + 7
= 22 + 7
= 29

7. Simplify these expressions and find their values if x = 3, a = – 1, b = – 2.
(i) 3x – 5 – x + 9
Solution:-
From the question it is given that x = 3
We have,
= 3x – x – 5 + 9

= 2x + 4

Then, substitute the value of x in the equation

= (2 × 3) + 4

= 6 + 4

= 10

(ii) 2 – 8x + 4x + 4

Solution:-

From the question it is given that x = 3

We have,

= 2 + 4 – 8x + 4x

= 6 – 4x

Then, substitute the value of x in the equation

= 6 - (4 × 3)

= 6 - 12

= - 6

(iii) 3a + 5 – 8a + 1

Solution:-

From the question it is given that a = -1

We have,

= 3a – 8a + 5 + 1

= - 5a + 6

Then, substitute the value of a in the equation

= - (5 × (-1)) + 6

= - (-5) + 6

= 5 + 6

= 11

(iv) 10 – 3b – 4 – 5b

Solution:-

From the question it is given that b = -2

We have,

= 10 – 4 – 3b – 5b

= 6 – 8b

Then, substitute the value of b in the equation

= 6 – (8 × (-2))

= 6 – (-16)
= 6 + 16
= 22

(v) 2a – 2b – 4 – 5 + a

Solution:-

From the question it is given that a = -1, b = -2

We have,

= 2a + a – 2b – 4 - 5
= 3a – 2b - 9

Then, substitute the value of a and b in the equation

= (3 × (-1)) – (2 × (-2)) – 9
= -3 – (-4) – 9
= - 3 + 4 – 9
= -12 + 4
= -8

8. (i) If z = 10, find the value of $z^3 – 3(z – 10)$.

Solution:-

From the question it is given that z = 10

We have,

= $z^3 – 3z + 30$

Then, substitute the value of z in the equation

= $(10)^3 – (3 × 10) + 30$
= 1000 – 30 + 30
= 1000

(ii) If p = – 10, find the value of $p^2 – 2p – 100$

Solution:-

From the question it is given that p = -10

We have,

= $p^2 – 2p - 100$

Then, substitute the value of p in the equation

= $(-10)^2 – (2 × (-10)) – 100$
= 100 + 20 - 100
= 20

9. What should be the value of a if the value of $2x^2 + x – a$ equals to 5, when x = 0?

Solution:-

From the question it is given that x = 0

We have,

$2x^2 + x – a = 5$

$a = 2x^2 + x – 5$

Then, substitute the value of x in the equation

$a = (2 \times 0^2) + 0 – 5$

$a = 0 + 0 – 5$

$a = -5$

10. Simplify the expression and find its value when a = 5 and b = – 3.

$2(a^2 + ab) + 3 – ab$

Solution:-

From the question it is given that a = 5 and b = -3

We have,

$= 2a^2 + 2ab + 3 – ab$

$= 2a^2 + ab + 3$

Then, substitute the value of a and b in the equation

$= (2 \times 5^2) + (5 \times (-3)) + 3$

$= (2 \times 25) + (-15) + 3$

$= 50 - 15 + 3$

$= 53 – 15$

$= 38$