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

= $(3 × 2^2) – (2 × 2) – 7$

= (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) – 3p² + 4p + 7

Solution:-

From the question it is given that p = -2

Then, substitute the value of p in the question

= (-3 × (-2)²) + (4 × (-2)) + 7

= (-3 × 4) + (-8) + 7

= -12 – 8 + 7

= -20 + 7

= -13

(iii) – 2p³ – 3p² + 4p + 7

Solution:-

From the question it is given that p = -2

Then, substitute the value of p in the question

= (-2 × (-2)³) – (3 × (-2)²) + (4 × (-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) x² + 2x + 1

Solution:-

From the question it is given that x = -1

Then, substitute the value of x in the question

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

$= 1 - 2 + 1$

$= 2 - 2$

$= 0$

(iv) $2x^2 - x - 2$

Solution:-

From the question it is given that x = -1

Then, substitute the value of x in the question

$= (2 \times (-1)^2) - (-1) - 2$

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

$= 2 + 1 - 2$

$= 3 - 2$

$= 1$

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 × 0) + (2 × -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

= $(2 × 0^2) + (-1)^2 + 1$

= 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

= $(2 × 0^2 × -1) + (2 × 0 × (-1)^2) + (0 × -1)$

= 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

= $(0^2) + (0 × (-1)) + 2$

= 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 × 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

$= 6 - (4 \times 3)$

$= 6 - 12$

$= -6$

(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

$= -(5 \times (-1)) + 6$

$= -(-5) + 6$

$= 5 + 6$

$= 11$

(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

$= 6 - (8 \times (-2))$

$= 6 - (-16)$

$= 6 + 16$

$= 22$

(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

$= (3 \times (-1)) - (2 \times (-2)) - 9$

$= -3 - (-4) - 9$

$= -3 + 4 - 9$

$= -12 + 4$

$= -8$

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

= $(10)^3 - (3 \times 10) + 30$

= 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

= $(-10)^2 - (2 \times (-10)) - 100$

= 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