**Question no 01:**

#include <stdio.h>

#include <math.h>

#define cost\_per\_portal 10000

#define cost\_per\_ship 50000

#define cost\_per\_distance 1000

**const double** costOfTeleportationPortals(**int** num\_portals) {

**return** num\_portals \* cost\_per\_portal;

}

**const double** costOfSpaceShips(**int** num\_ships, **double** distance) {

**return** num\_ships \* cost\_per\_ship + distance \* cost\_per\_distance;

}

**double** totalTransportationCost(**int** num\_portals, **int** num\_ships, **double** distance) {

**double** cost\_portals = costOfTeleportationPortals(num\_portals);

**double** cost\_ships = costOfSpaceShips(num\_ships, distance);

**return** cost\_portals + cost\_ships;

}

**int** main() {

**int** num\_portals = 1000;

**int** num\_ships = 2000;

**double** distance = 10000;

**double** total\_cost = totalTransportationCost(num\_portals, num\_ships, distance);

printf("The total cost of transportation is: %f", total\_cost);

**return** 0;

}

**Question no 02:**

#include <stdio.h>

**int** formulaOne(**int** a, **int** b) {

**return** a + b;

}

**int** formulaTwo(**int** c) {

**return** c \* c;

}

**int** calc(**int** a, **int** b) {

**return** a + b;

}

**int** main() {

**int** result = calc(formulaOne(10, 20), formulaTwo(40)) + calc(formulaOne(30, 50), formulaTwo(60));

printf("Result: %d**\n**", result);

**return** 0;

}

**Question no 03:**

#include <stdio.h>

**float** calculate\_revenue(**float** revenue) {

**return** revenue;

}

**float** calculate\_expenses(**float** expenses) {

**return** expenses;

}

**float** calculate\_net\_profit(**float** revenue, **float** expenses) {

**return** revenue - expenses;

}

**float** calculate\_profit\_margin(**float** revenue, **float** expenses) {

**if** (revenue == 0) {

printf("Error: Division by zero.**\n**");

**return** -1.0;

}

**return** calculate\_net\_profit(revenue, expenses) / revenue;

}

**float** calculate\_roi(**float** revenue, **float** expenses) {

**if** (expenses == 0) {

printf("Error: Division by zero.**\n**");

**return** -1.0;

}

**return** calculate\_net\_profit(revenue, expenses) / expenses;

}

**int** main() {

**float** revenue, expenses;

printf("Enter the revenue: ");

scanf("%f", &revenue);

printf("Enter the expenses: ");

scanf("%f", &expenses);

printf("Total revenue: %.2f**\n**", calculate\_revenue(revenue));

printf("Total expenses: %.2f**\n**", calculate\_expenses(expenses));

printf("Net profit: %.2f**\n**", calculate\_net\_profit(revenue, expenses));

**float** profit\_margin = calculate\_profit\_margin(revenue, expenses);

**if** (profit\_margin == -1.0) {

printf("Error: Division by zero.**\n**");

**return** 1;

}

printf("Profit margin: %.2f**\n**", profit\_margin);

**float** roi = calculate\_roi(revenue, expenses);

**if** (roi == -1.0) {

printf("Error: Division by zero.**\n**");

**return** 1;

}

printf("ROI: %.2f**\n**", roi);

**return** 0;

}

**Question no 04:**

#include <stdio.h>

#include <stdbool.h>

bool canPlaceBoxes(**char** box1, **char** box2) {

// If both boxes are not the same color, they can be placed

**if** ((box1 == 'R' || box1 == 'r') && (box2 == 'B' || box2 == 'b')) {

**return** true;

} **else if** ((box1 == 'B' || box1 == 'b') && (box2 == 'R' || box2 == 'r')) {

**return** true;

} **else** {

**return** false;

}

}

**int** main() {

**char** box1, box2;

printf("Enter the color of the first box (r for red and b for blue) : ");

scanf("%c", &box1);

printf("Enter the color of the second box (r for red and b for blue) : ");

scanf("%c", &box2);

**if** (canPlaceBoxes(box1, box2)) {

printf("The boxes can be placed.**\n**");

} **else** {

printf("Invalid placement.**\n**");

}

**return** 0;

}