1. Create a web page with JavaScript code that will prompt the user to select one of three options. The JavaScript code should include four functions. The main function describes the selections, prompts the user for two numbers, and prompts the user to select one of the options. Depending on the user's choice, one of the following three functions will be called:

a. A function will find the value of `x^y` where `x` and `y` are the numbers input by the user.

b. A function will find the area of a right triangle and return the area. The formula for the area of a right triangle is as follows:

```
Area = ½ base * height
```

The two numbers input by the user represent `base` and `height`.

c. A function will find the distance between two points. The first point will be assumed to start at the origin and will have coordinates `(0, 0)`. The two numbers input by the user represent the coordinates of the second point. The formula for the distance between two points is as follows:

`Distance =` $\sqrt{a^2 + b^2}$ where `a = (x1 - x2)` and `b = (y1 - y2)`.

In this program, `x1 = 0`, `y1 = 0`, `x2` and `y2` are the numbers input by the user.

The output should display on the web page as one of the following statements:

```
The value of x^y is result.
The area of a right triangle with base = x and height = y is result
The distance from the origin to a point at coordinates (x, y) is result
```

Save the page as `mathFacts.html` and be sure to include an appropriate page title.

3. Create a page that allows the user to play a game with the computer. In this game, the player will roll two dice and the computer will roll two dice. The `Math.random()` method will be used to generate each roll of a die, from `1` to `6`. The sum of the computer's roll should be compared to the sum of the player's roll and whoever has the greater sum is the winner of that round. The sum of the winner's roll for that round should be added to his or her point total. Use functions to call for each roll of two dice and the sum, for keeping track of the points, and to allow the player to continue or quit after a round of play. The following are the game rules:

- If one player rolls doubles (i.e., two fours or two sixes, etc.) and is a winner for that round, he or she should get double points.
- If one player rolls doubles but is not a winner, nothing special happens.
- If the two sums for any round are a tie, no one gets any points.
- The game ends when either player reaches at least 100 points or when the human player wants to quit.

Save your page as `dice.html` and be sure to include an appropriate page title.

4. Add wagering to the page created in Programming Challenge 3. Allow the human player to choose how much money he or she wishes to wager on a roll. Instead of the sum of the face value of the two dice accruing to a winner, the dollar amount in the kitty for each roll will go to the winner. After the player "bets" on a roll, the computer should, using a random number, generate one of three responses: either the computer matches the bet, folds (wagers nothing and the round goes to the player) or raises the bet. If the computer raises the bet, the player can either match the raise, fold and his initial wager is added to the computer's total, or match and raise the bet. In the last case, the process begins again. Save your page as `wagers.html` and be sure to include an appropriate page title.

5. Create a web page that uses JavaScript to generate a table with three rows and four columns. Each cell should be filled with a simple math problem. After a cell is created, two functions should be called to fill the cell:

- One function should generate a random number between 1 and 20 (inclusive). This function should be called twice and it returns a number each time.
- A second function should generate one of four operations at random, using a random number from 1 to 4 where $1 = \mathbf{add}, 2 = \mathbf{subtract}, 3 = \mathbf{multiply},$ and $4 = \mathbf{divide}.$ The result should be returned to the `main` function.

Use the results of these three calls to fill each cell as follows:

```
cellContents = randomNumber1 + operation + randomNumber2;
```

Save your page as `math_ops.html` and be sure to include an appropriate page title.

6. Use the page generated in Programming Challenge 5 and add a way for a student to enter answers to the math problems. The answers should display on the web page in spaces numbered `1 - 12`. Save your page as `math_answers.html` and be sure to include an appropriate page title.