

Logic and Reference Quickstove

Boolean

An infield fly in baseball is called to prevent the defense from recording an easy double play. When an infield fly occurs, the batter is automatically out once the ball is touched by a fielder or hits the ground and the baserunners must go back to their bases (though they may "tag up" if they wish). An infield fly occurs when the following conditions are met: (1) there is a force out at third base (this means that there are runners on first base and second base), (2) there are not two outs, and (3) the batter hits a catchable fly ball to the infield or the shallow outfield. The table below highlights 30 baseball scenarios. Complete the tasks below to determine if the umpire should declare an infield fly.

Task #	Points	Task Description
1	9	Use the AND function with appropriate arguments in cell H11 to determine if there is a force out at third base. There is a force out at third base if "Runner on 1st" and "Runner on 2nd" are both "Yes".
2	1	Copy your function in cell H11 and paste it down to complete the "Force @ Third" column of the table.
3	7	Use the OR function with appropriate arguments in cell I11 to determine if there is a "Fly Ball". There is a "Fly Ball" if a "Catchable Fly Ball [is] Hit to" the "Infield" (cell E11 is "Yes") or "Shallow Outfield" (cell F11 is "Yes").
4	1	Copy your function in cell I11 and paste it down to complete the "Fly Ball" column of the table.
5	7	Use the NOT function in cell J11 to determine if there are "Not 2 Outs". Use the "Outs" column in your determination.
6	1	Copy your function in cell J11 and paste it down to complete the "Not 2 Outs" column of the table.
7	3	Use the AND function in cell K11 to determine if all fo the conditions are met for an infield fly to be declared. These conditions are: there must be a force out at third (H11 = TRUE), there must be a catchable fly ball it to the infield or shallow outfield (I11 = TRUE), and there must not be 2 outs (J11 = TRUE).
8	1	Copy your function in cell K11 and paste it down to complete the "Infield Fly" colun of the table.

If Functions

Quickstove ships worldwide and this is but a sample of shipments to the Western United States. When multiple quantities of an item are in the same order, quantity discounts on that item are offered. Customers are charged sales tax on all shipments within Utah where Quickstove is located as well as on shipments to Oregon where they have another facility. Sales tax is not charged on shipments to other states.

Task #	Points	Task Description
1	6	Use an IF function in Cell G15 to calculate the Net Price. There is a discount of 2% applied to the Unit Price in E15 if 2 or more items are ordered and a discount of 5% applied if 10 or more are ordered. Refer to the appropriate discounts in cells E10, E11 and E12 for your IF function arguments. Use absolute and relative references when appropriate.
2	1	Reuse your formula in cell G15 and paste it down to complete the "Net Price" column of the table.
3	2	Multiply the "Quantity" by the "Net Price" to get the "Sale Amt" in Cell H15
4	1	Reuse your formula in cell H15 and paste it down to complete the "Sale Amt" column
5	2	Use an IF function in Cell I15 to calculate the Tax. There is a tax of 5% applied on shipments to Utah, 6% applied on shipments to Oregon, but no tax on shipments to other states. Refer to the appropriate tax rates in cells B10, B11 and B12 for your IF function arguments. Use absolute and relative references when appropriate.
6	3	Reuse your formula in cell I15 and paste it down to complete the "Tax" column
7	1	Calculate the Invoice "Total" in cell J15
8	2	Reuse your formula in cell J15 and paste it down to complete the "Total" column
9	6	Use the SUM function to calculate the worksheet totals in cells I9, I10 and I11

Lookup Functions

When shipping products two major costs are incurred: the cost of insuring the item and the actual freight cost. Insurance is dependent on the value of the shipment. Quickstove has an agreement with shippers for a fixed rate that is determined by destination state and service level (regular, express or overnite).

Task #	Points	Task Description
1	3	Use the VLOOKUP function in cell G11 to determine the insurance cost. Use the "Value" in cell E11 to lookup the appropriate cost on the "Insurance Cost" reference table (range K11:L18). Make sure to use relative and absolute references appropriately.
2	3	Copy your formula in cell G11 and paste it down to complete the "Insurance Cost" column of the table.
3	6	Use the HLOOKUP function in cell H11 to calculate freight cost based on the shipping class and state to which the shipment is going. Freight Cost can be referenced on the "Freight Cost" lookup table (range E5:N8). Be sure to use appropriate relative and absolute cell references. Hint: You will need to use a function within the HLOOKUP function to determine the appropriate row.
4	3	Copy your formula in cell H11 and paste it down to complete the "Freight Cost" column
5	2	Calculate the Invoice "Shipping Total" in cell I11
6	1	Copy your formula in cell I11 and paste it down to complete the "Shipping Total" column

Conditional Functions

Looking at shipments, at employee performance, and at services required by customers; Quickstove management performs several analyses.

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Task #	Points	Task Description
1	3	Use the COUNTIF function in cell J8 to determine the number of shipments handled by employee Merrill.
2	1	Copy your function in cell J8 and paste it down to J11 to complete the "Count" column of the "Shipments by Employee" table for individual employees.
3	3	Use the SUMIF function in cell K8 to determine the value of the shipments handled by employee Merrill.
4	1	Copy your function in cell K8 and paste it down to complete the "Total Value" column of the "Shipments by Employee" table for individual employees.
5	3	Use the AVERAGEIF function in cell L8 to determine the average value of the shipments handled by employee Merrill.
6	1	Copy your function in cell L8 and paste it down to complete the "Average Value" column of the "Shipments by Employee" table for individual employees.
7	4	Use the appropriate functions in cells J12,K12 and L12 to calculate the overall number of shipments, total value of all shipments and average value of all shipments.
8	3	Use the COUNTIF function in cell J17 to determine the number of regular shipments.
9	1	Copy your function in cell J17 and paste it down to complete the "Count" column of the "Shipments by Shipping Class" table.
10	3	Use the SUMIF function in cell K17 to determine the Total Value of the regular shipments.
11	1	Copy your function in cell K17 and paste it down to complete the "Total Value" column of the "Shipments by Shipping Class" table.
12	3	Use the AVERAGEIF function in cell L17 to determine the average value of the regular shipments.
13	1	Copy your function in cell L17 and paste it down to complete the "Average Value" column of the "Shipments by Shipping Class" table..