AT23-2 EM384 Quiz 1 (Solution)

* Required

* This form will record your name, please fill your name.

1

I built a model to forecast the weather patterns next year, based on historical weather patterns at West Point. This is an example of * (2 Points)

- ◯ Descriptive Analytics
- ◯ Prescriptive Analytics
- ⓧ Predictive Analytics

2

I want to calculate the Net Present Value (NPV) of the following cash flow, with a discount factor of 0.02. What formula would I use in Excel? * (2 Points)

	A	B
1	Year	Cash Flow
2	0	$10
3	1	$20
4	2	($3)
5	3	$45
6	4	($7)

- ◯ =NPV(0.02,B2:B6)
- ⓧ =NPV(0.02,B3:B6)+B2
- ◯ =B6/(1+0.02)^4
- ◯ =B6/(1+0.02)^6

3

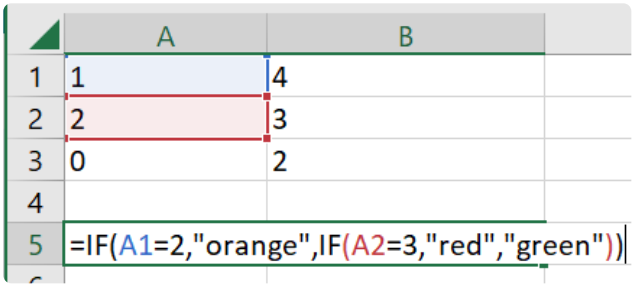
The following SUMPRODUCT formula returns what value? * (2 Points)

	A	B
1	1	4
2	2	3
3	0	2
4		
5	=SUMPRODUCT(A1:A3,B1:B3)	

1*4+2*3+0*2=10

4

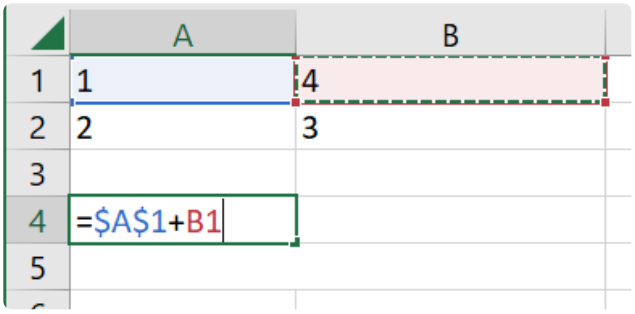
The following nested if statement returns what color? * (2 Points)



- ◯ orange
- ◯ red
- ⓧ green

5

Understanding absolute and relative referencing: If you copy the formula in A4 to the cell A5, what formula ends up in A5? * (2 Points)



- ◯ =$A$2+B4
- ◯ =$A$2+ 2
- ⓧ =$A$1+B2
- ◯ =$A$2+B1

6

What value will be displayed in cell D1 once the formulas are calculated? *
(2 Points)

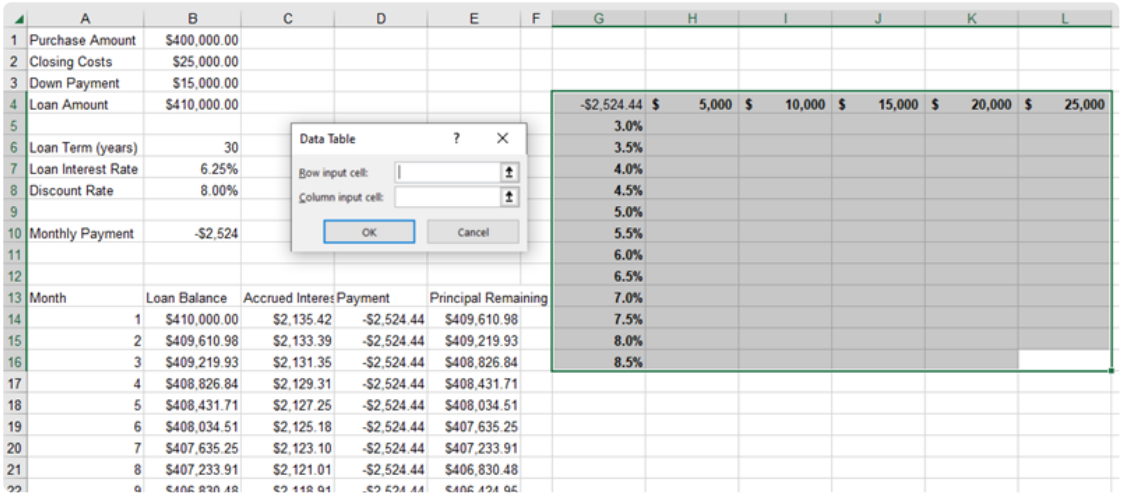
	A	B	C	D
1	1	4	=A1+B1	=C1*B1

C1 = 1+4=5 **D1 = 5*4=20**

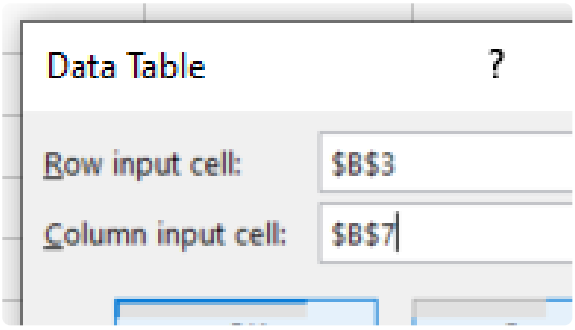
7

Sensitivity Analysis with a Two-way Data Table: You are purchasing your first home and want to understand how your monthly payment would be impacted if you changed the amount of your down payment from $5,000 to $25,000 (in $5,000 increments) and if the loan interest rate ranged between 3.0% and 8.5% (in 0.5% increments). Which one of the following options will construct your two-way data table correctly?

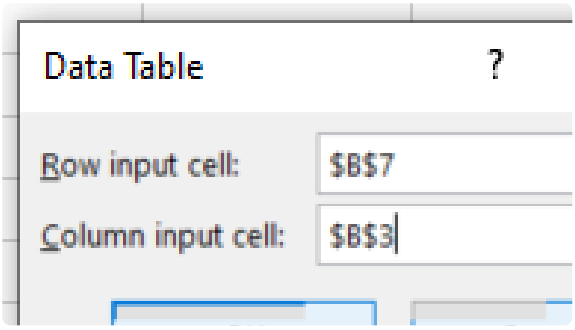
* (2 Points)



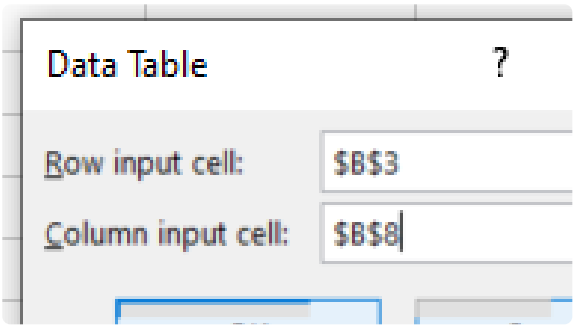
	A	B	C	D	E	F	G	H	I	J	K	L
1	Purchase Amount	$400,000.00										
2	Closing Costs	$25,000.00										
3	Down Payment	$15,000.00										
4	Loan Amount	$410,000.00					-$2,524.44	$ 5,000	$ 10,000	$ 15,000	$ 20,000	$ 25,000
5							3.0%					
6	Loan Term (years)	30					3.5%					
7	Loan Interest Rate	6.25%					4.0%					
8	Discount Rate	8.00%					4.5%					
9							5.0%					
10	Monthly Payment	-$2,524					5.5%					
11							6.0%					
12							6.5%					
13	Month	Loan Balance	Accrued Interes	Payment	Principal Remaining		7.0%					
14	1	$410,000.00	$2,135.42	-$2,524.44	$409,610.98		7.5%					
15	2	$409,610.98	$2,133.39	-$2,524.44	$409,219.93		8.0%					
16	3	$409,219.93	$2,131.35	-$2,524.44	$408,826.84		8.5%					
17	4	$408,826.84	$2,129.31	-$2,524.44	$408,431.71							
18	5	$408,431.71	$2,127.25	-$2,524.44	$408,034.51							
19	6	$408,034.51	$2,125.18	-$2,524.44	$407,635.25							
20	7	$407,635.25	$2,123.10	-$2,524.44	$407,233.91							
21	8	$407,233.91	$2,121.01	-$2,524.44	$406,830.48							



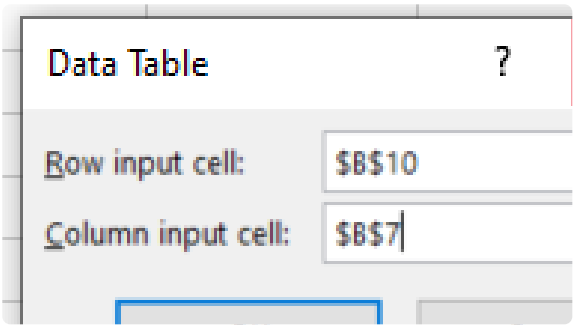
X Option 4



◯ Option 2



◯ Option 3

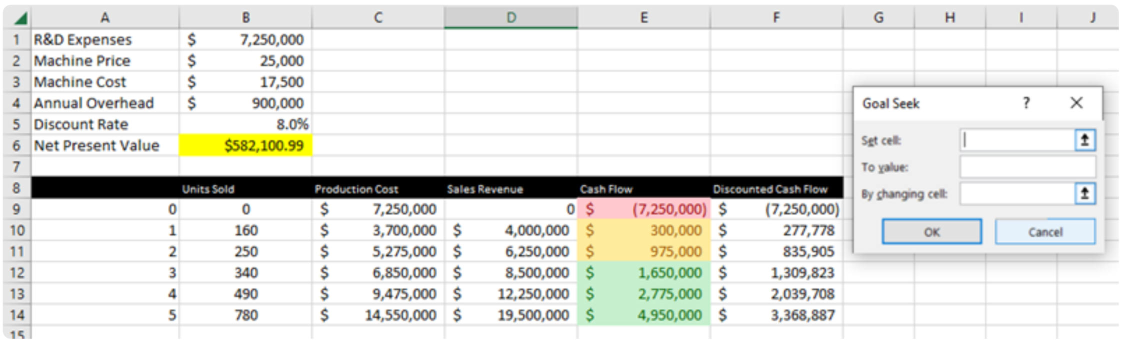


◯ Option 1

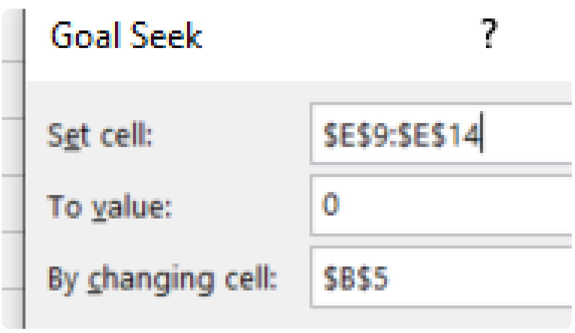
8

Breakeven Analysis: You have a model that analyzes the profitability of an investment using NPV. You want to use goal seek to determine the Discount Rate at which the NPV of your anticipated cash flows equals zero (the internal rate of return). Which option correctly configures Excel's Goal Seek dialog for this model?

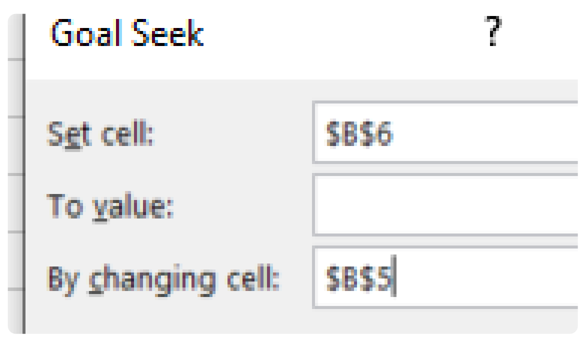
* (2 Points)



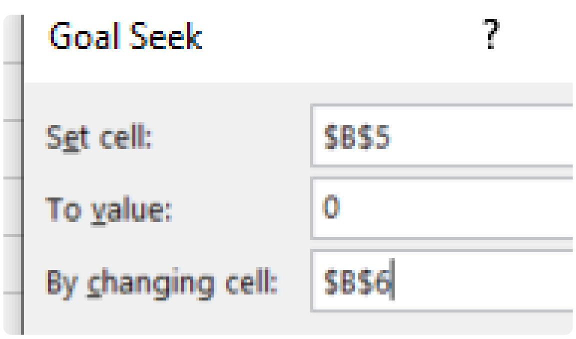
	A	B	C	D	E	F
1	R&D Expenses	$ 7,250,000				
2	Machine Price	$ 25,000				
3	Machine Cost	$ 17,500				
4	Annual Overhead	$ 900,000				
5	Discount Rate	8.0%				
6	Net Present Value	$582,100.99				
7						
8		Units Sold	Production Cost	Sales Revenue	Cash Flow	Discounted Cash Flow
9	0	0	$ 7,250,000	0	$ (7,250,000)	$ (7,250,000)
10	1	160	$ 3,700,000	$ 4,000,000	$ 300,000	$ 277,778
11	2	250	$ 5,275,000	$ 6,250,000	$ 975,000	$ 835,905
12	3	340	$ 6,850,000	$ 8,500,000	$ 1,650,000	$ 1,309,823
13	4	490	$ 9,475,000	$ 12,250,000	$ 2,775,000	$ 2,039,708
14	5	780	$ 14,550,000	$ 19,500,000	$ 4,950,000	$ 3,368,887



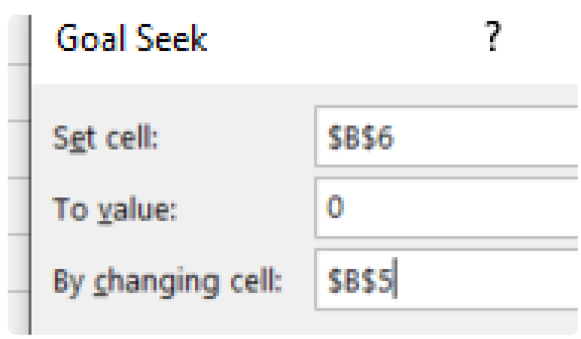
Option 1



Option 4



Option 3



Option 2

9

Sensitivity Analysis is: (Select all that apply) * (2 Points)

- [x] looking at how the key outputs of my model change based on a change of one or more inputs
- [ ] looking at the output from my base case
- [x] a method that allows us to measure the changes in our model output based on changes in our base case parameters
- [x] a method that us helps us appreciate the potential importance of the numerical assumptions of a model.

10

The ethical responsibilities of an analyst are: (Select all that apply) * (2 Points)

- [x] to apply impartial recommendations
- [ ] to select model assumptions that can give you the best output to support prior decisions
- [ ] to collect data in a way that favors an interested party's desired outcome of a study
- [x] to present data, results, and analytical model honestly