

2.04 Toolbox - MDFL

Weighted Averages

Weighted Averages (pg 2 of 5)	Help videos and work space:																		
<p>Weighted Averages: _____</p> <p>_____</p> <p>Each value in the data set is _____ by a predetermined weight (percentage).</p> <p>Weighted averages could be used for:</p> <ul style="list-style-type: none">• _____• _____	<p>Video: Weighted Averages</p>																		
<p>Example: Calculate your overall grade in chemistry class:</p> <table border="1" data-bbox="99 1073 857 1551"><thead><tr><th>Category</th><th>Weight</th><th>Your Grade</th></tr></thead><tbody><tr><td>Homework</td><td>10%</td><td>90</td></tr><tr><td>Quizzes</td><td>15%</td><td>81</td></tr><tr><td>Labs</td><td>25%</td><td>94</td></tr><tr><td>Tests</td><td>30%</td><td>88</td></tr><tr><td>Semester Exam</td><td>20%</td><td>95</td></tr></tbody></table> <p>Step 1: Convert each percentage to a decimal.</p> <p>Step 2: Multiply your grade in each category by the weight in decimal form.</p> <p>Step 3: Add together the result of each product. This is your final overall grade in the class!</p>	Category	Weight	Your Grade	Homework	10%	90	Quizzes	15%	81	Labs	25%	94	Tests	30%	88	Semester Exam	20%	95	<p>Video: Calculating Overall Grade</p>
Category	Weight	Your Grade																	
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Weighted Average Rate of Return (ROR): percentage of money _____ or _____ relative to what is invested.

- To calculate the ROR, find the sum of the weighted returns and then divide by the total amount of money invested.

Example:

Calculate the weighted average ROR for your investments:

Investment	Amount Invested	ROR
Investment A	\$1,000	1.5%
Investment B	\$250	4.8%
Investment C	\$300	3.6%
Investment D	\$200	8.7%
Investment E	\$500	-5.6%
Investment F	\$250	12.2%

Step 1: Convert each ROR percentage to a decimal.

Step 2: Multiply the amount for each investment by the ROR in decimal form to find the weighted returns.

Step 3: Find the sum of the weighted returns and the total amount invested.

Step 4: Divide the sum of the weighted returns by the total amount of money invested to find the weighted average.

Video:
[Rate of Return \(ROR\)](#)

Weighted Average with Technology (pg 3 of 5)**Help videos and work space:**

Weighted Average with a Spreadsheet

Video:[Weighted Average with a Spreadsheet](#)**Example:**

A small business owner is sourcing supplies for a product from three different vendors. Vendor A provides 500 units at \$1.50 each, Vendor B provides 100 units at \$1.75 each, and Vendor C provides 200 units at \$1.65 each. What is the weighted average for the cost per unit?

Step 1: Enter the known data into a spreadsheet.

	A	B	C	D
1	Vendor	Units	Cost Per Unit	Total Cost
2	A	500	\$1.50	
3	B	100	\$1.75	
4	C	200	\$1.65	
5				
6				

Step 2: Calculate the total column.

	A	B	C	D
1	Vendor	Units	Cost Per Unit	Total Cost
2	A	500	\$1.50	=B2*C2
3	B	100	\$1.75	
4	C	200	\$1.65	
5				
6				

	A	B	C	D
1	Vendor	Units	Cost Per Unit	Total Cost
2	A	500	\$1.50	\$750.00
3	B	100	\$1.75	\$175.00
4	C	200	\$1.65	\$330.00
5				
6				

*with google spreadsheet, use =multiply(cell,cell)

Step 3: Find the sum of the total cost and units column.

	A	B	C	D
1	Vendor	Units	Cost Per Unit	Total Cost
2	A	500	\$1.50	\$750.00
3	B	100	\$1.75	\$175.00
4	C	200	\$1.65	\$330.00
5				=sum(D2:D4)
6				

	A	B	C	D
1	Vendor	Units	Cost Per Unit	Total Cost
2	A	500	\$1.50	\$750.00
3	B	100	\$1.75	\$175.00
4	C	200	\$1.65	\$330.00
5		800		\$1,255.00
6				

*with google spreadsheet, use =add(cell,cell)

Step 4: Divide the total weighted amount by the total number of units/investments.

	A	B	C	D
1	Vendor	Units	Cost Per Unit	Total Cost
2	A	500	\$1.50	\$750.00
3	B	100	\$1.75	\$175.00
4	C	200	\$1.65	\$330.00
5		800		\$1,255.00
6				
7				=D5/B5
8				

	A	B	C	D
1	Vendor	Units	Cost Per Unit	Total Cost
2	A	500	\$1.50	\$750.00
3	B	100	\$1.75	\$175.00
4	C	200	\$1.65	\$330.00
5		800		\$1,255.00
6				
7	Weighted average cost per unit			\$1.57
8				

*with google spreadsheet, use =divide(cell,cell)

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Practice Problems (pg 4 of 5)	Help Video and work space:
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Ariela manages investment portfolios. One year after starting their investments, Ariela met with her clients and shared information about how the investments were doing.

Video:
[Investment Portfolio Practice Problem](#)

Investment	ROR	Portfolio 1	Portfolio 2	Portfolio 3
Investment A	16.5%	\$500	\$2,000	\$2,000
Investment B	-28.2%	\$5,000	\$500	\$1,000
Investment C	4.3%	\$1,000	\$1,000	\$3,000
Investment D	1.6%	\$3,000	\$500	\$1,000
Investment E	3.5%	\$500	\$6,000	\$3,000

Calculate the weighted average of the RORs for each portfolio. Based on the results, **rank the portfolios in order from worst to best:**

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