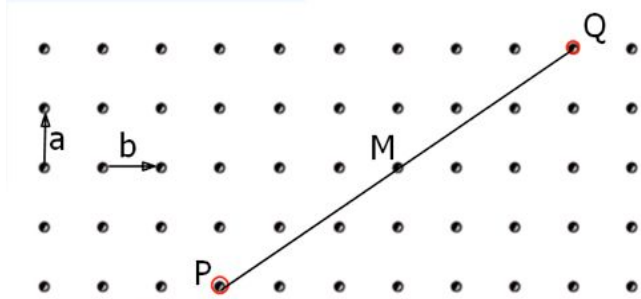


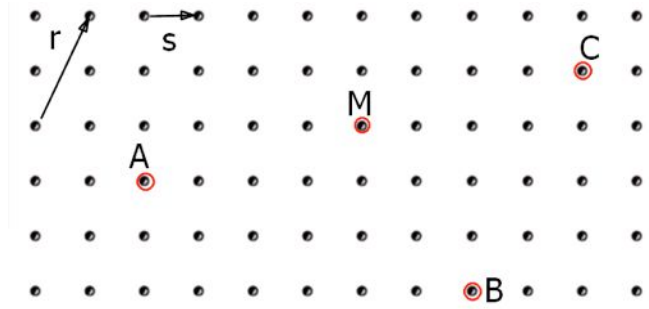
Dancing Vectors Worksheet

For the following diagram, you are only allowed to use the moves \underline{a} and \underline{b} as defined below.



- Write, using vectors (moves), two different routines that get you from P to Q
- What is the fewest number of moves that gets you from P to Q? Write down this combination of vectors
- What is the shortest vector routine that gets you from Q to P?
- Write, in terms of \mathbf{a} and \mathbf{b} , the vector PM (combination/routine that gets from P to M)
- Write, in terms of \mathbf{a} and \mathbf{b} , the vector MQ . What can you say about point M?

For the following diagram, you are only allowed to use the moves \underline{r} and \underline{s} as defined below.



Write down in terms of vectors (moves) \underline{r} and \underline{s} , the following combination moves for

- BC, AB, AC, AM, and BM
- If a new vector (move) is defined as $BD = r - 3s$, put the point D on the diagram.

So you Think you can Vector

Objective: Students will create a 30-60 second dance routine through the use of vectors as dance moves.

Here is how the project will work:

- You will be given 2 different vectors, or dance moves, to work with. These are vectors i and j . You can also create 2 of your own vectors, or dance moves, to work with.
- Given a grid, you will label point A and point B
- You will use **only** those vectors to get from point A to point B (you may use vectors in both directions)
- You will base the dance routine on the moves that got you from point A to point B
- You must create a written dance routine
- You may choose your own (appropriate) song to dance to
- At least 2 students in each group must present the dance
- Students must give a summary of dance moves (add up your vectors). In other words, you should write your vector as the linear combination of i , j , and the two vectors that you choose.

Steps:

1. Choose point A and B. Remember, you must start at A and finish at B, even if A and B are in the same spot!
2. Choose the vectors that you will use to create your dance routine and label these on your dance routine sheet.
3. Choose a song
4. Create your dance. Be sure to write it on the dance sheet/grid.
5. Have fun and do those dance moves!

What MUST be turned in to me the day of your dance:

1. Written dance routine (just like my example)
 - a. Point A and Point B must be labeled
 - b. The additional vectors that you used must be labeled.
2. The linear combination of vectors (a summary of your dance moves).

Rubric:

	0-3 Point	6 Points	9 Points
Written Dance Routine	Project includes 0-1 of the following: <ul style="list-style-type: none"> • Dance routine starts at Point A and ends at Point B • Dance routine is written out and uses only the vectors listed on their dance sheet. • A summation of the dance moves (segment AB) is included. 	Projects includes 2 of the following: <ul style="list-style-type: none"> • Dance routine starts at Point A and ends at Point B • Dance routine is written out and uses only the vectors listed on their dance sheet. • A summation of the dance moves (segment AB) is included. 	Project includes all 3 of the following: <ul style="list-style-type: none"> • Dance routine starts at Point A and ends at Point B • Dance routine is written out and uses only the vectors listed on their dance sheet. • A summation of the dance moves (segment AB) is included.
The Dance	Dance includes 0-1 of the following: <ul style="list-style-type: none"> • Routine follows the required time (30-60 seconds) • At least 2 members of the group perform • The routine follows the written routine submitted to me. 	Dance includes 2 of the following: <ul style="list-style-type: none"> • Routine follows the required time (30-60 seconds) • At least 2 members of the group performs • The routine follows the written routine submitted to me. 	Dance includes all 3 of the following: <ul style="list-style-type: none"> • Routine follows the required time (30-60 seconds) • At least 2 members of the group perform • The routine follows the written routine submitted to me.
Participation	The group did not work together in the creation and preparation of the dance routine. Students showed no enthusiasm and the routine was ill-prepared.	About half the group participated in the creation and preparation of the dance routine. The students showed some enthusiasm and the routine could have used some more work.	All students participated in the creation and preparation of the dance routine. Students should enthusiasm and it was evident that the routine was well-practiced.

Total _____/27

