

Single Mechanics - Resultant Vectors

Patrons are reminded to beware the ambiguous case of the sine rule...

Copy and complete the following table:

Que	Vector 1	Vector 2	Resultant
1	14 N on a bearing of 030°	11 N on a bearing of 110°	
2	10 N on a bearing of 180°	24 N on a bearing of 280°	
3		15 N on a bearing of 140°	20 N on a bearing of 010°
4	63 N on a bearing of 138°		90 N on a bearing of 070°
5	10 N on a bearing of 000°	17 N on a bearing of 115°	
6		20 N on a bearing of 140°	12 N on a bearing of 207°
7	70 N on a bearing of 025°		24 N on a bearing of 300°
8	14 N on a bearing of 120°	20 N on a bearing of 060°	
9		17 N on a bearing of 140°	50 N on a bearing of 155°
10	34 N on a bearing of 230°		15 N on a bearing of 150°

Answers (forces and bearings to one decimal place):

- 19.2 N on a bearing of 064.3°. Verified.
- 24.3 N on a bearing of 256.1°. Verified.
- 31.8 N on a bearing of 348.8°. Verified.
- 88.4 N on a bearing of 028.7°. Verified.
- 15.7 N on a bearing of 079.6°. Verified.
- 18.9 N on a bearing of 284.2°. Verified.
- 72.0 N on a bearing of 224.4°. Verified.
- 29.6 N on a bearing of 084.2°. Verified.
- 33.9 N on a bearing of 162.5°. Verified.
- 34.7 N on a bearing of 075.2°.

Que	Vector 1	Vector 2	Vector 3	Resultant
11	100 N on a bearing of 271°	56 N on a bearing of 095°	112 N on a bearing of 134°	
12	13 N on a bearing of 073°	16 N on a bearing of 144°	20 N on a bearing of 271°	
13	100 N on a bearing of 070°	120 N on a bearing of 030°	50 N on a bearing of 199°	
14	5.1 N on a bearing of 300°	6 N on a bearing of 290°	7 N on a bearing of 200°	

- 88.7 N on a bearing of 155.8°.
- 8.98 N on a bearing of 168.2°.
- 165.0 N on a bearing of 056.6°.
- 12.6 N on a bearing of 261.0°.