Graphically Adding Vectors

Page 1—Instructions and Vector information. Path information at bottom of page.
Page 2—blank grid paper.
Page 3—key to ex 1
Page 4—key to ex 2

Disclaimer: Through the use of pdf files, I hope that the pages have the same dimensions as mine, but realizing that each printer could be different, it is possible that your measurements could be off from my key.

Instructions: Start at the given grid point. Then perform the vector operations to find the ending point. Your resultant is from the starting point to the ending point. Your answer should be given as a measurement of the resultant (with units) and the resultant's direction.   I wrote these examples so that each vector locks onto a grid point. In an actual example, this may or may not be true. Do not assume this.

Step 1: Set up the vectors by multiplying (like 2B) and adding 180º to any negative vectors.
Step 2: Find the starting point on the graph paper grid.
Step 3: Graph each vector. Start the second vector at the end of the first vector.
Step 4: Check yourself with the keys on p. 3 and 4.

Example 1:   Given Vectors:
A = 2.8 cm at 270º   C = 5.25 cm at 135º
B = 5 cm at 30º   D = 1.6 cm at 29.5º

Graph: 2B –2A + C – 4D   Starting at j9
(the set up of the vectors is at bottom of this page)

Example 2:   Given Vectors:
A = 5.7 cm at 103º   C = 2.5 cm at 156º
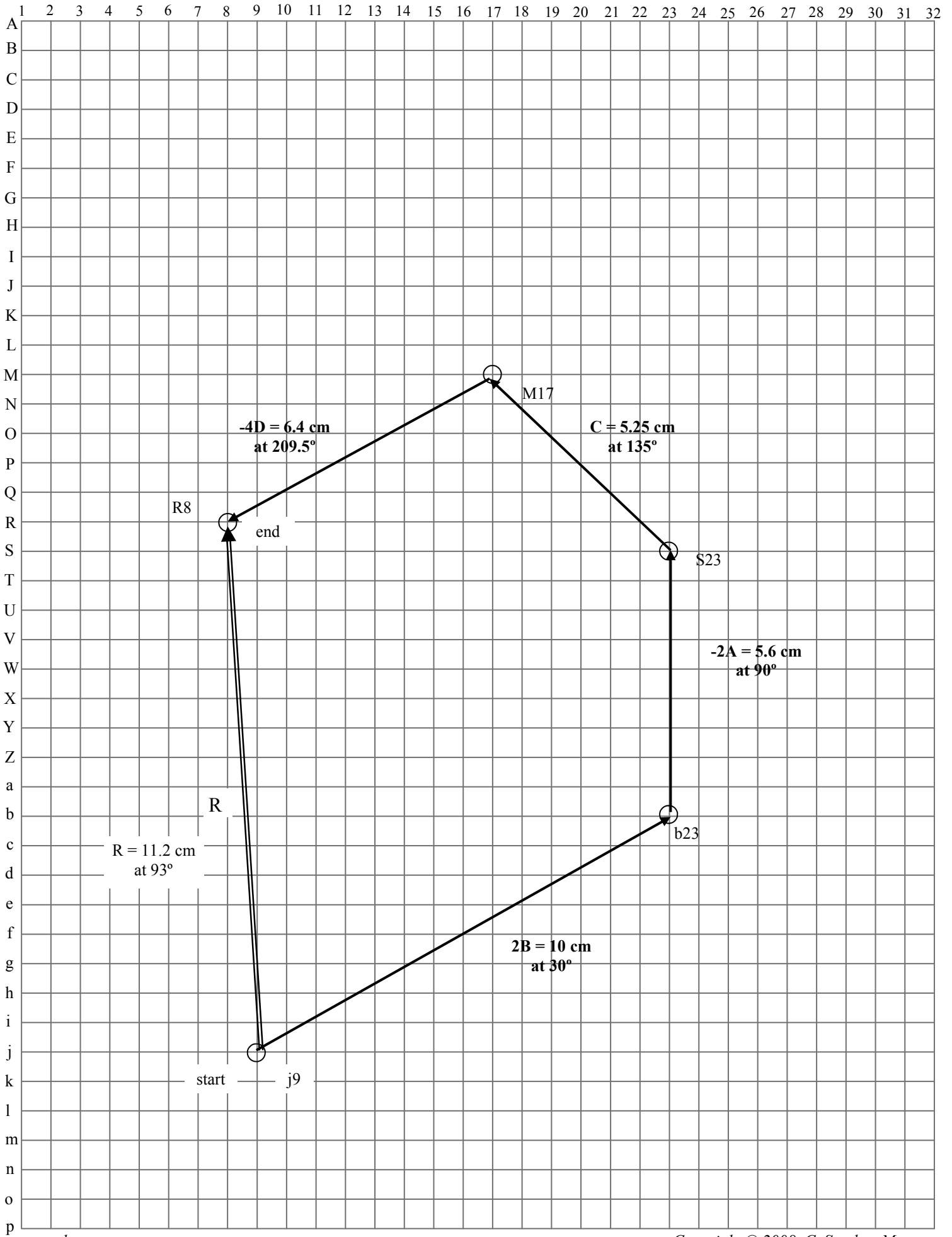B = 5.1 cm at –104º   D = 4.35 cm at 180º

Graph: -3C + B + 2D –A   Starting at F14
(the set up of the vectors is at bottom of this page

Example 1: Vector Setup:
2B = 10 cm at 30º   −2A = 5.6 at 90º
C = 5.25 cm at 135º   −4D = 6.4 at 209.5º

Example 2: Vector Setup:
−3C = 7.5 cm at 336º   −A = 5.7 at 283º
B = 5.1 cm at −104º   2D = 8.7 at 180º

A B C D E F G H I J K L M N O P Q R S T U V W X Y Z a b c d e f g h i j k l m n o p

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32

Key Ex 1: **2B –2A + C – 4D   Starting at j9**

-4D = 6.4 cm
at 209.5º

C = 5.25 cm
at 135º

M17

R8

end

S23

-2A = 5.6 cm
at 90º

R

R = 11.2 cm
at 93º

b23

2B = 10 cm
at 30º

start —— j9

Key Ex 2: **-3C + B + 2D –A**   **Starting at F14**

start

F14

−3C = 7.5 cm at 336°

K25

R = 13.8cm
at −97º OR
at 263º

R

B = 5.1 cm at −104º

S9

2D = 8.7 at 180°

S23

−A = 5.7 at 283º

end   b11