Appendix A

2D Vector Challenge 1

Forces have both magnitude and direction. In this exercise, three forces are acting on a block with separate magnitudes and from different directions. Using your Computer Aided Design (CAD) program, find the resultant force of the three subcomponents in this system.

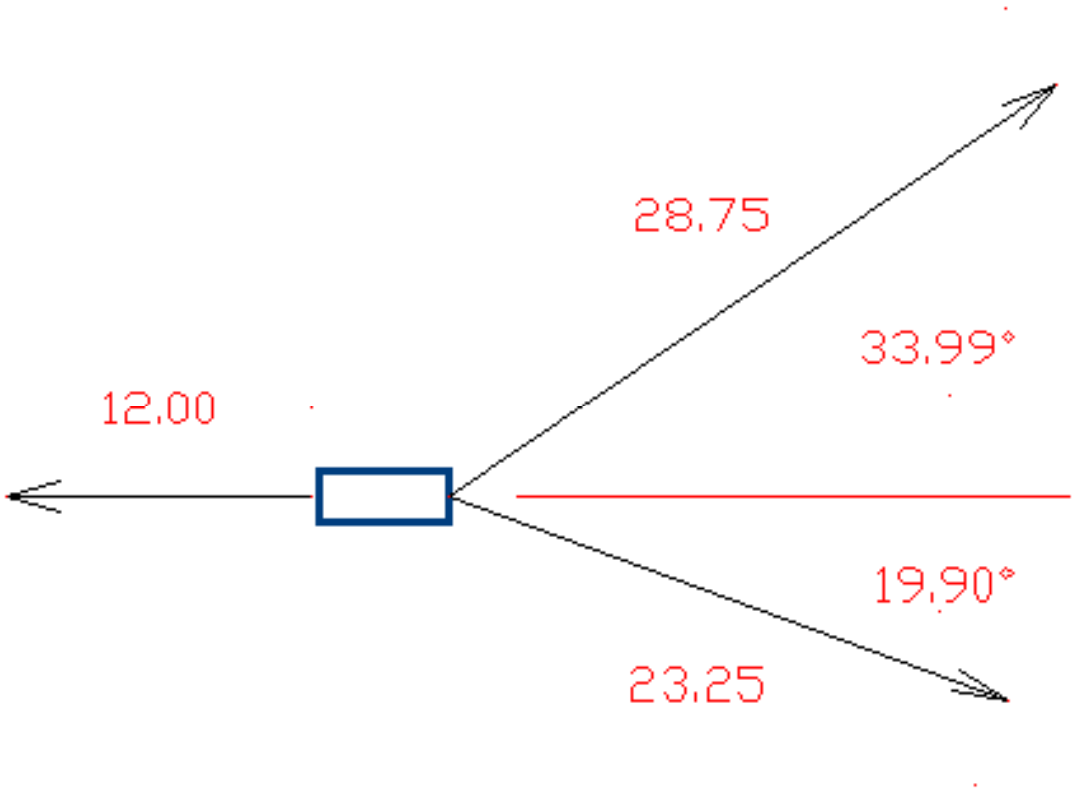

Figure A.1 – Three 2D Force Vectors

*** World Class CAD Challenge 10-5 * - Draw a 7 inch by 3.5 inch rectangular block and illustrate a 28.75 pound force vector at 33.99 degrees above the X-axis, a 23.25 pound force vector at 19.90 degrees below the X-axis and a 12.00 pound force vector at 180 degrees around the X-axis. Add one force vector onto the other to compute the Resultant. Measure the magnitude and direction of the Resultant. Save the drawing as Adding Vectors 5.dwg**

Send your best time and a copy of your drawing for verification to the authors of these problems to have your name, location and time posted. See the web site for instructions.
www.worldclasscad.com

Appendix A

2D Vector Challenge 2

Forces have both magnitude and direction. In this exercise, three forces are acting on a block with separate magnitudes and from different directions. Using your Computer Aided Design (CAD) program, find the resultant force of the three subcomponents in this system.

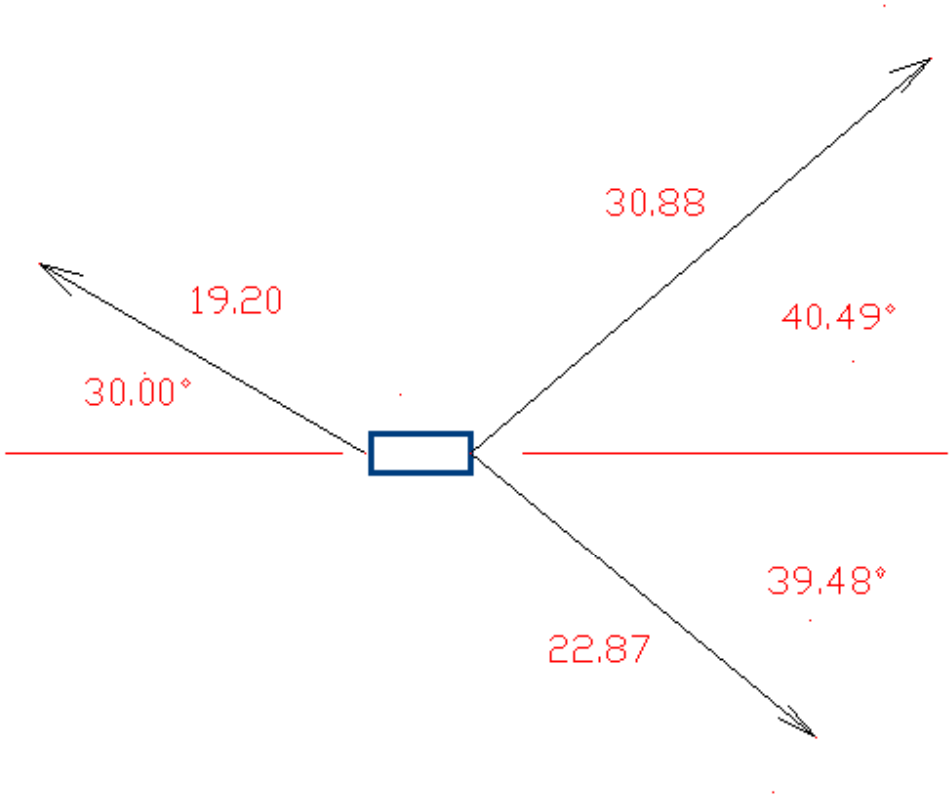

Figure A.2 – Three 2D Force Vectors

*** World Class CAD Challenge 10-6 * - Draw a 7 inch by 3.5 inch rectangular block and illustrate a 30.88 pound force vector at 40.49 degrees above the X-axis, a 22.87 pound force vector at 39.48 degrees below the X-axis and a 19.20 pound force vector at 150 degrees around the X-axis. Add one force vector onto the other to compute the Resultant. Measure the magnitude and direction of the Resultant. Save the drawing as Adding Vectors 6.dwg**

Send your best time and a copy of your drawing for verification to the authors of these problems to have your name, location and time posted. See the web site for instructions.
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Appendix A

2D Vector Challenge 3

Forces have both magnitude and direction. In this exercise, three forces are acting on a block with separate magnitudes and from different directions. Using your Computer Aided Design (CAD) program, find the resultant force of the three subcomponents in this system.

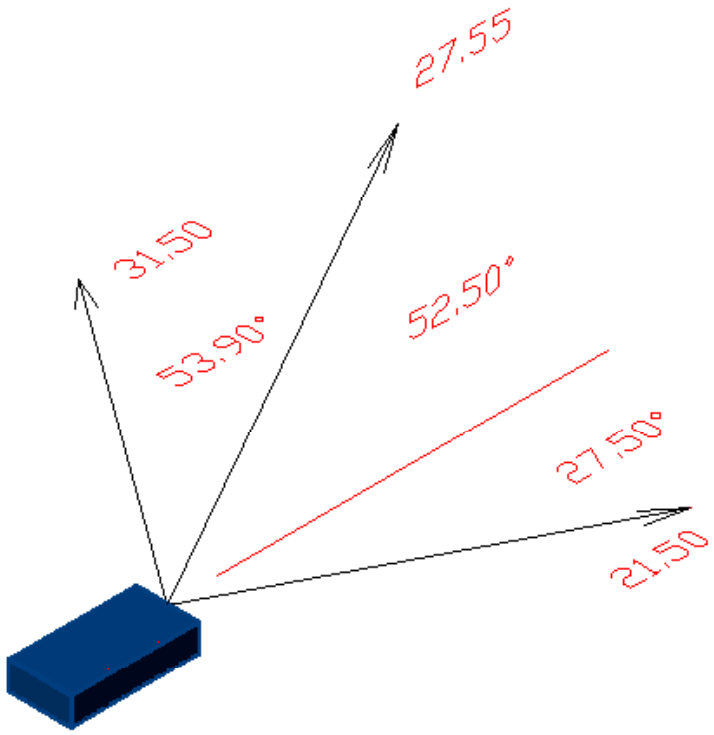

Figure A.3 – Three 3D Force Vectors

*** World Class CAD Challenge 10-7 * - Draw a 7 inch by 3.5 inch by 1.5 inch solid block and illustrate a 31.50 pound force vector at 53.90 degrees above the X-axis and a 21.50 pound force vector at 27.50 degrees below the X-axis. Add one more vector of 27.55 pounds force at 52.50 degrees above the XY-plane. Measure the magnitude and direction of the Resultant. Save the drawing as Adding 3D Vectors 2.dwg**

Send your best time and a copy of your drawing for verification to the authors of these problems to have your name, location and time posted. See the web site for instructions.
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