1. A person walks 25° north of east for 3.10 km. How far would the person walk due north and due east to arrive at the same location?
2. While exploring a cave, a spelunker starts at the entrance and moves the following distances: 75.0 m north, 250 m east, 125 m at an angle 30° north of east and 150 m south. Find the magnitude and direction of the resultant displacement from the cave entrance.
3. Which of these examples of vector addition are correct, and which are incorrect?
4. This figure shows vectors $A$ and $B$. Graphically calculate the following:


No numbers are involved.
5. If you walk 35 km at an angle $25^0$ counterclockwise from east, and then 22 km at $230^0$ counterclockwise from east, find the distance and direction from your starting point to your destination.
6. A brick is thrown upward from the top of a building at an angle of 25° to the horizontal and with an initial speed of 15 m/s. If the brick is in flight for 12 seconds, what is the horizontal displacement of the brick? How high is the building? What is the maximum height of the brick in its trajectory?
7. The police find a car at a distance \( w = 20 \) m from the base of a cliff of height \( h = 100 \) m. How fast was the car going when it went over the edge? Solve the problem symbolically first, then plug in the numbers.
8. A baseball pitcher throws a pitch clocked at $v_x = 73.3$ mi/h. He throws horizontally. By what amount, $d$, does the ball drop by the time it reaches home plate, $L = 60.0$ ft away?
9. You throw a ball with an initial speed of 10 m/s at an angle of 30°. It lands some distance away. What is the maximum height and range of the ball?