

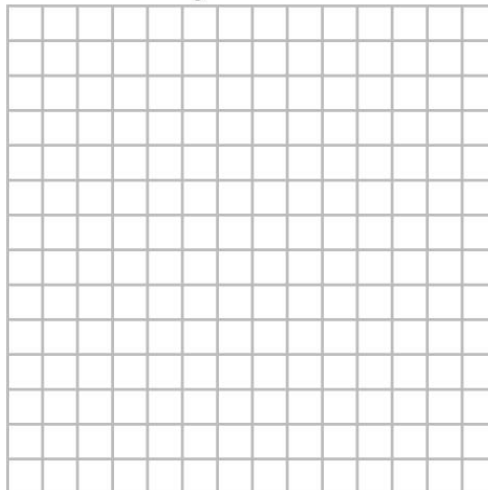
Momentum and Collisions

# Graph Skills

## Momentum and Impulse

1. A soccer ball with a mass of 0.950 kg is traveling east at 10.0 m/s. Using a ruler and a scale of 1.0 square per 1.0 kg•m/s, draw a vector representing the momentum of the soccer ball.
2. A force of  $2.00 \times 10^2$  N directed south is exerted on the ball for 0.025 s. Using the technique you used in item 1, draw a vector representing the impulse on the soccer ball.
3. The final momentum of the soccer ball is the initial momentum plus the change in momentum. Add your vectors from the previous questions to draw the final momentum vector of the ball.
4. Use your scale (1.0 square = 1.0 kg•m/s) to find the magnitude of the final momentum.

Use this grid for items 1–6.



5. Using your value for final momentum and the mass given in item 1, find the final speed of the ball.
6. How can you determine the angle at which the ball is traveling?

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7. Use the techniques you used in items 1–5 to find the final speed of a 0.150 kg baseball that initially travels east at 40.0 m/s and is then hit with a westward force of 1250 N over a 0.010 s interval.

Use this grid for item 7.




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