**Activity: Reaction Time and Stopping Distance:** distance = velocity ✕ time

NAME:

Use [this](https://faculty.washington.edu/chudler/java/redgreen.html) to determine your average reaction time.

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| Average Reaction Time - 1 pt - |  |

Using your reaction time, and the average rate of deceleration of a car (15 ft/s2), how far would your car travel when stopping?

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| At 25 mph |
| 1. Convert miles per hour to feet per second. - 1 pt -

$$25 \frac{mile}{hour}\left(\frac{5280 feet}{1 mile}\right)\left(\frac{1 hour}{60 minutes}\right)\left(\frac{1 minute}{60 seconds}\right)= ?$$ |  |
| 1. Multiply your velocity by your reaction time. - 1 pt -

$$\left(answer for part a. \frac{feet}{second}\right)× \left(--- seconds\right) = ?$$ |  |
| 1. Calculate how far the car moves while applying the brakes. - 1 pt -

$$\left(answer for part a. \frac{feet}{second}\right)^{2}÷\left(2×15\frac{feet}{second^{2}}\right)^{}= ?$$ |  |
| 1. Add the distances from reacting and braking. - 1 pt -

$$\left(answer for part b. + answer for part c.\right) = ?$$ |  |

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| At 40 mph |
| 1. Convert miles per hour to feet per second. - 1 pt -

$$40 \frac{mile}{hour}\left(\frac{5280 feet}{1 mile}\right)\left(\frac{1 hour}{60 minutes}\right)\left(\frac{1 minute}{60 seconds}\right)= ?$$ |  |
| 1. Multiply your velocity by your reaction time. - 1 pt -

$$\left(answer for part a. \frac{feet}{second}\right)× \left(--- seconds\right) = ?$$ |  |
| 1. Calculate how far the car moves while applying the brakes. - 1 pt -

$$\left(answer for part a. \frac{feet}{second}\right)^{2}÷\left(2×15\frac{feet}{second^{2}}\right)^{}= ?$$ |  |
| 1. Add the distances from reacting and braking. - 1 pt -

$$\left(answer for part b. + answer for part c.\right) = ?$$ |  |

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| At 65 mph |
| 1. Convert miles per hour to feet per second. - 1 pt -

$$65 \frac{mile}{hour}\left(\frac{5280 feet}{1 mile}\right)\left(\frac{1 hour}{60 minutes}\right)\left(\frac{1 minute}{60 seconds}\right)= ?$$ |  |
| 1. Multiply your velocity by your reaction time. - 1 pt -

$$\left(answer for part a. \frac{feet}{second}\right)× \left(--- seconds\right) = ?$$ |  |
| 1. Calculate how far the car moves while applying the brakes. - 1 pt -

$$\left(answer for part a. \frac{feet}{second}\right)^{2}÷\left(2×15\frac{feet}{second^{2}}\right)^{}= ?$$ |  |
| 1. Add the distances from reacting and braking. - 1 pt -

$$\left(answer for part b. + answer for part c.\right) = ?$$ |  |

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| At 75 mph |
| 1. Convert miles per hour to feet per second. - 1 pt -

$$75 \frac{mile}{hour}\left(\frac{5280 feet}{1 mile}\right)\left(\frac{1 hour}{60 minutes}\right)\left(\frac{1 minute}{60 seconds}\right)= ?$$ |  |
| 1. Multiply your velocity by your reaction time. - 1 pt -

$$\left(answer for part a. \frac{feet}{second}\right)× \left(--- seconds\right) = ?$$ |  |
| 1. Calculate how far the car moves while applying the brakes. - 1 pt -

$$\left(answer for part a. \frac{feet}{second}\right)^{2}÷\left(2×15\frac{feet}{second^{2}}\right)^{}= ?$$ |  |
| 1. Add the distances from reacting and braking. - 1 pt -

$$\left(answer for part b. + answer for part c.\right) = ?$$ |  |

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| Physically estimate the distances calculated above. How close were you? - 1 pt - |  |
| Did you overestimate or underestimate the distances? - 1 pt - |  |
| How might this activity change someone’s driving habits? - 3 pts - |
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