

Heart rate activity Name _____ Period _____

A person's maximum heart rate can be approximated by the following expression:

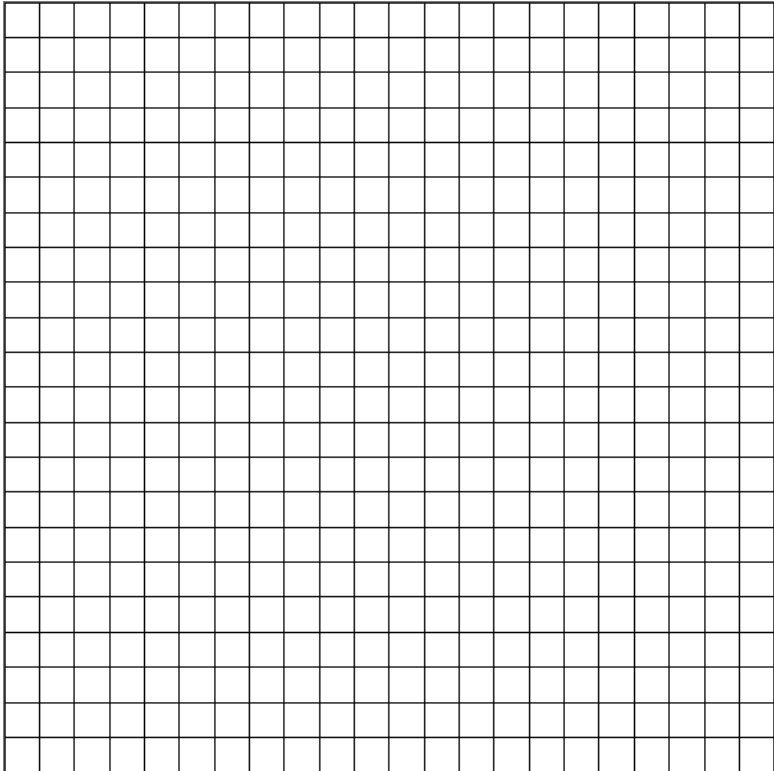
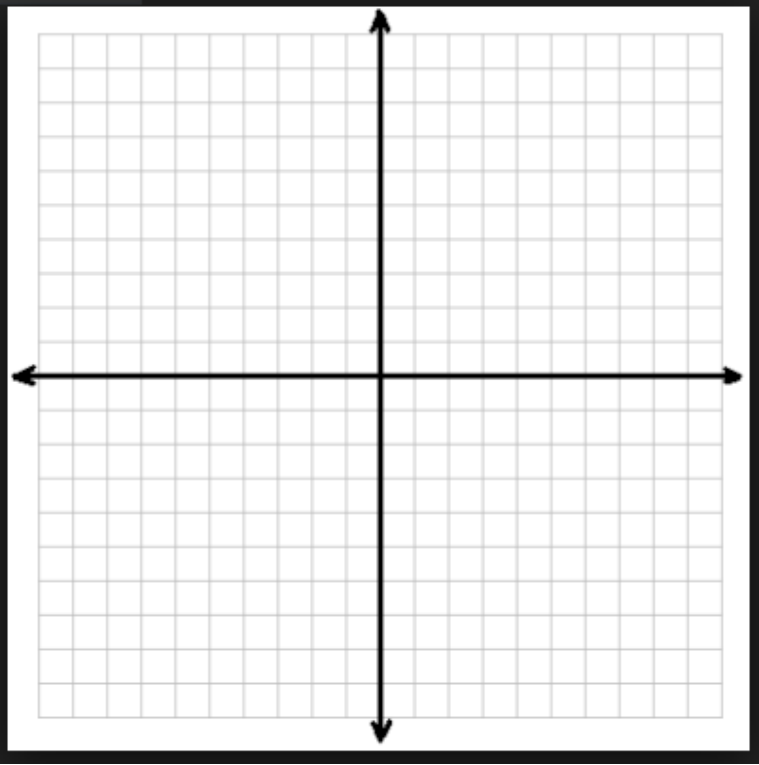
$220 - \text{the person's age}$

For example, a 48-year-old person would have an approximate maximum heart rate of:

$220 - 48 = 172$ beats per minute.

1. If you were to graph this relation, which of the graphs on the back side of this paper would you use, the top graph or the bottom graph?

2. Why did you choose that graph?



Think about labels and scales for the horizontal axis and vertical axis. What will the axes look like? Add labels and scales to the axes on the graph you chose on the previous page, but do not graph the relation yet.

3. What label did you put on the horizontal axis? _____
4. What label did you put on the vertical axis? _____
5. Why did you choose these labels? _____

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6. What scale did you use for the horizontal axis? _____
 7. What scale did you use for the vertical axis? _____
 8. Why did you choose these scales? _____

Graph this relation now, using the graph, labels and scales you chose. Compare your graph with your shoulder partner.

9. What's the same about your two graphs? What's different? _____

According to recommendations by the American Heart Association, during exercise, a person should have a target heart rate of between 50% and 85% of maximum.

10. If you were to graph the line that shows 50% of the maximum heart rate, what would it look like? Would it be parallel to the original line? If so, why? Would it intersect the original line? If so, where?

On the same graph you chose for the first line:

Graph the line that shows 50% of maximum heart rate.

Graph the line that shows 85% of maximum heart rate.

Shade the appropriate region that shows a person's target heart rate range during exercise.

11. Write the equations of the three lines you just graphed.

a) Maximum

b) 50% of maximum

c) 85% of maximum

12. What is the slope for each? What is the **meaning** of the slope?

13. What is the y-intercept for each? What is the **meaning** of the y-intercept?

14. What is the target heart rate range during exercise for a person your age?

15. What is the target heart rate range during exercise for a 48-year-old person?