

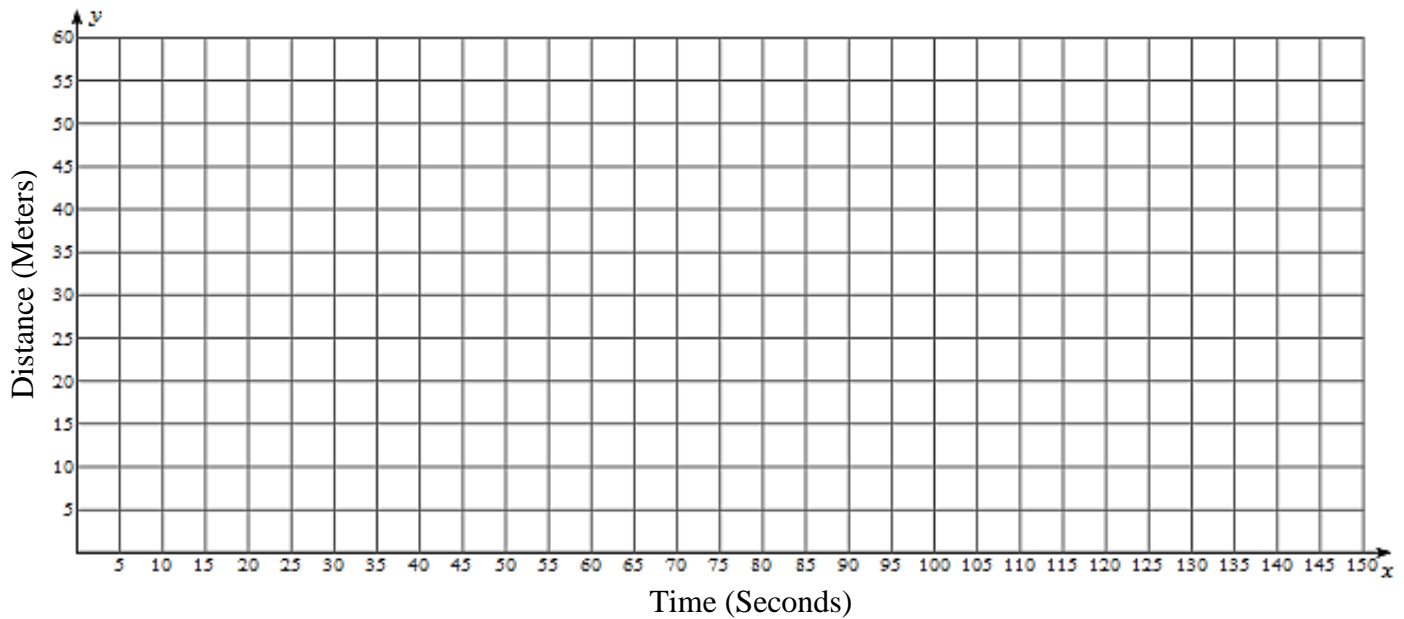
Rat Race

Jade and Juno are rats running in a race. Can you determine at what time the rats tie the race?

1. Juno runs **60 m in 180 seconds**. What is Juno's unit rate as a fraction? _____ *m* per second.
2. Juno is the older sister so she gets **no head start**. Where is Juno when the race begins? _____ *meters*
3. Write Juno's starting point (*y*-intercept) as an ordered pair: (,)
4. Using slope and *y*-intercept write a function rule for Juno's distance: _____

5. Jade runs **30 m in 120 seconds**. What is Jade's unit rate as a fraction? _____ *m* per second.
6. Jade is the younger sister so she gets a **10 m** head start. Where is Jade when the race begins? _____ *meters*
7. Write Jade's starting point (*y*-intercept) as an ordered pair: (,)
8. Using slope and *y*-intercept write a function rule for Jade's distance: _____

9. **Graph Juno and Jade's function rules on the same grid. Label which line belongs to which rat.**

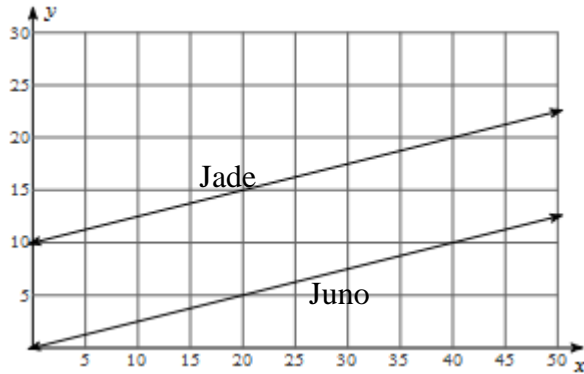


10. At what **time** are Juno and Jade tied? _____
11. At what **distance** are Juno and Jade tied? _____
12. Write an ordered pair representing the time and distance at which the rats tie. (,)
13. How many meters does the course have to be to ensure a victory for Juno? _____
14. How many meters does the course have to be to ensure a victory for Jade? _____

Jade and Juno race a second time. The rats' times in seconds (x) and distances in meters (y) are represented by the following function rules and graph:

Jade: $y = \frac{1}{4}x + 10$

Juno: $y = \frac{1}{4}x$

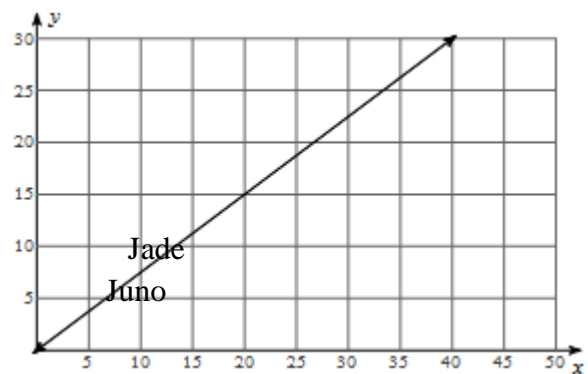


15. Describe what the graph tells us about the second race:

Jade and Juno race a third time. The rats' times in seconds (x) and distances in meters (y) are represented by the following function rules and graph:

Jade: $y = \frac{3}{4}x$

Juno: $y = \frac{3}{4}x$



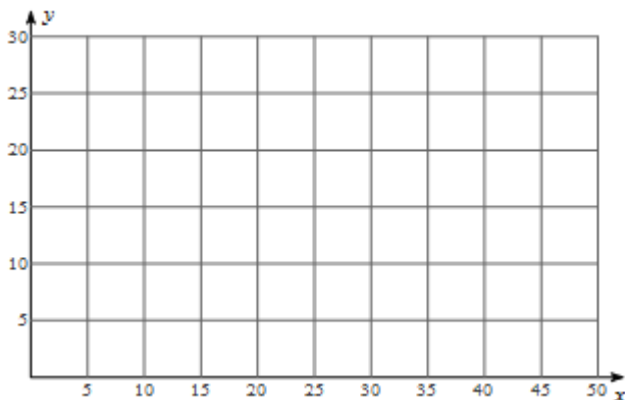
16. Describe what the graph tells us about the third race:

The rats Cocoa and Rose are running a race. The rats' times in seconds (x) and distances in meters (y) are represented by the following function rules:

Cocoa: $y = \frac{2}{3}x$

Rose: $y = \frac{1}{2}x + 5$

17. Graph the function rules. **Label which line belongs to which rat.**



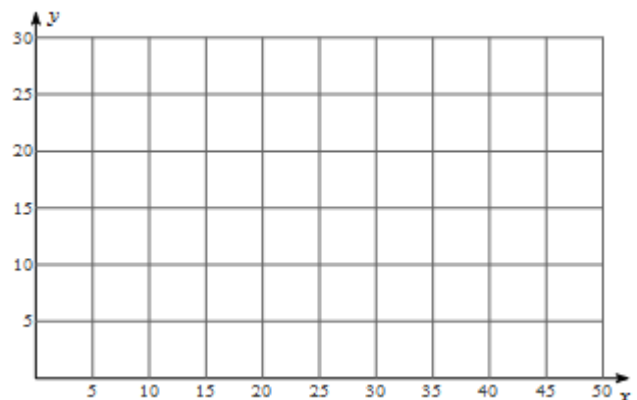
18. Describe what the graph tells us about the situation:

The rats Remy and Finn are running a race. The rats' times in seconds (x) and distances in meters (y) are represented by the following function rules:

Remy: $y = \frac{1}{5}x$

Finn: $y = \frac{1}{5}x$

19. Graph the function rules. **Label which line belongs to which rat.**



20. Describe what the graph tells us about the situation: