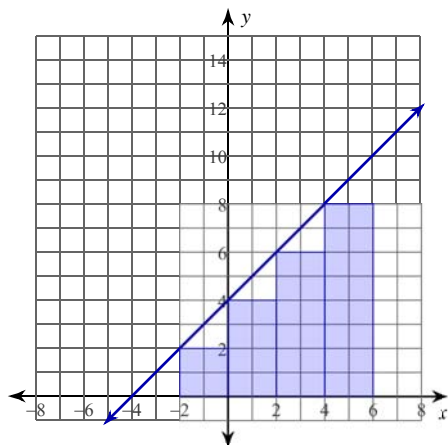


## Approximating Area under a Curve

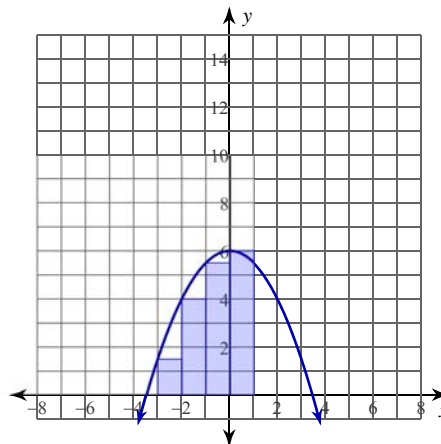
Date \_\_\_\_\_ Period \_\_\_\_\_

For each problem, approximate the area under the curve over the given interval using 4 left endpoint rectangles.

1)  $y = x + 4$ ;  $[-2, 6]$

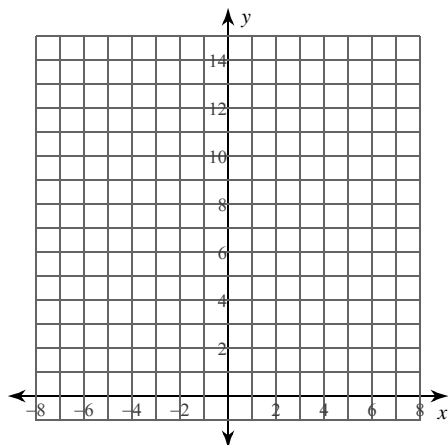


2)  $y = -\frac{x^2}{2} + 6$ ;  $[-3, 1]$

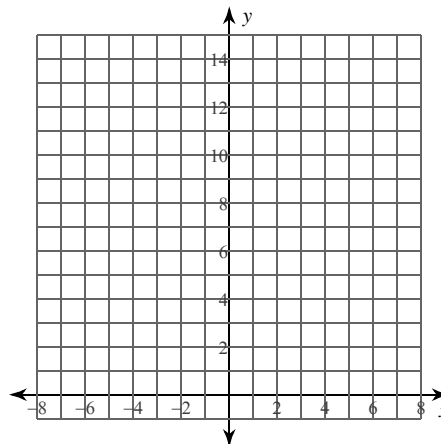


For each problem, approximate the area under the curve over the given interval using 5 left endpoint rectangles. You may use the provided graph to sketch the curve and rectangles.

3)  $y = x^2 + 2x + 3$ ;  $[-4, 1]$



4)  $y = \frac{5}{x}$ ;  $[2, 7]$

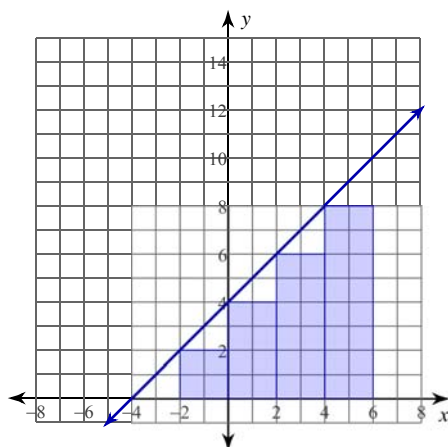
**Critical thinking question:**

- 5) Look back at problems 1-4. In which problems does the approximated area appear less than the actual area? In which problems does the approximated area appear greater than the actual area? Would using more and smaller rectangles improve our approximation or make it worse?

## Approximating Area under a Curve

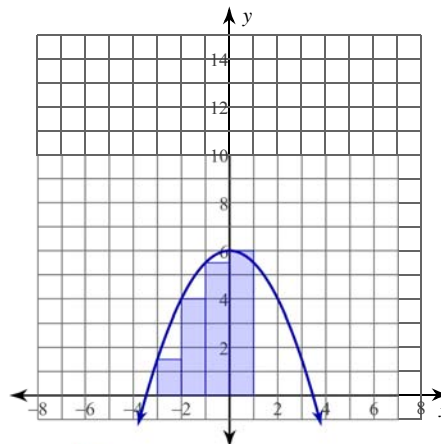
For each problem, approximate the area under the curve over the given interval using 4 left endpoint rectangles.

1)  $y = x + 4$ ;  $[-2, 6]$



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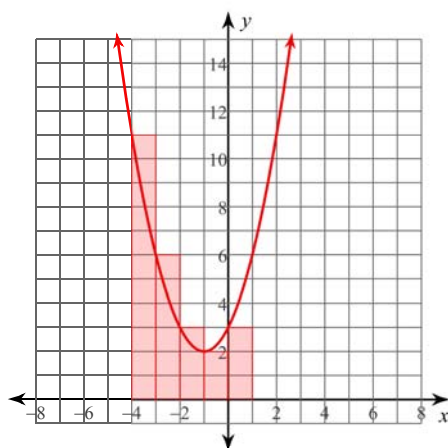
2)  $y = -\frac{x^2}{2} + 6$ ;  $[-3, 1]$



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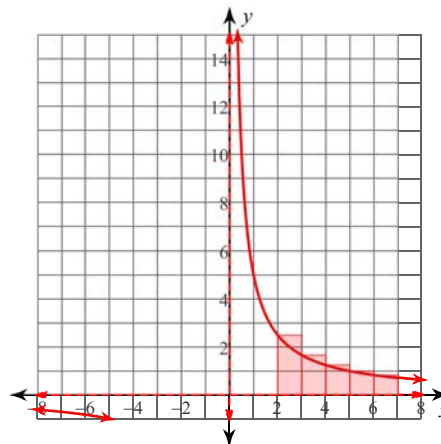
For each problem, approximate the area under the curve over the given interval using 5 left endpoint rectangles. You may use the provided graph to sketch the curve and rectangles.

3)  $y = x^2 + 2x + 3$ ;  $[-4, 1]$



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4)  $y = \frac{5}{x}$ ;  $[2, 7]$

 $\frac{29}{4} = 7.25$ **Critical thinking question:**

- 5) Look back at problems 1-4. In which problems does the approximated area appear less than the actual area? In which problems does the approximated area appear greater than the actual area? Would using more and smaller rectangles improve our approximation or make it worse?

The approximated areas for problems 1 and 2 appear to be less than the actual. Problems 3 and 4 appear greater. More rectangles would improve our approximation.