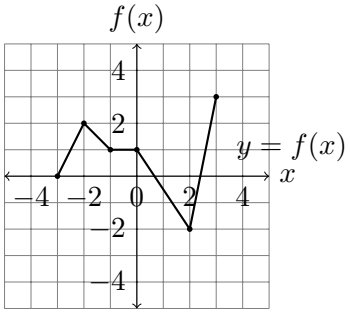
COLLEGE ALGEBRA QUIZ

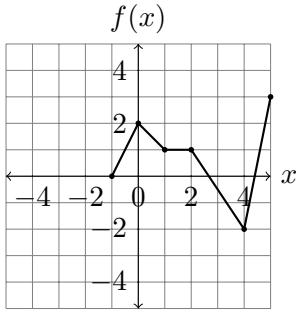
(1) Determine the equation of a function which looks like the squaring function, $f(x) = x^2$, but shifted left 5 units and up 3 units.
   (a) $f(x) = (x+5)^2 + 3$
   (b) $f(x) = (x-5)^2 + 3$
   (c) $f(x) = (x+3)^2 + 5$
   (d) $f(x) = (x+3)^2 - 5$

(2) Determine the equation of a function which looks like the cubing function, $f(x) = x^3$, but reflected across the x-axis, and stretched vertically by a factor of 2.
   (a) $f(x) = -2x^3$
   (b) $f(x) = 2x^3$
   (c) $f(x) = -8x^3$
   (d) $f(x) = 8x^3$

(3) Below is the graph $y = f(x)$. Use this to answer (a),(b),(c), and (d).



(a) Which of the following is the graph of $y = f(x-2)$?

(i)


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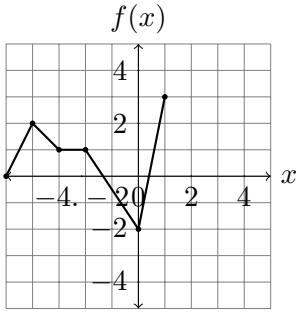

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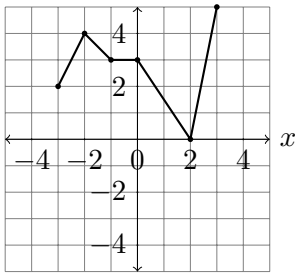

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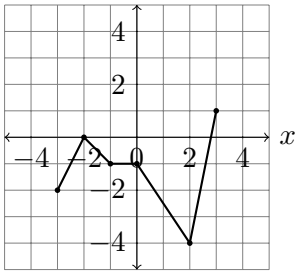
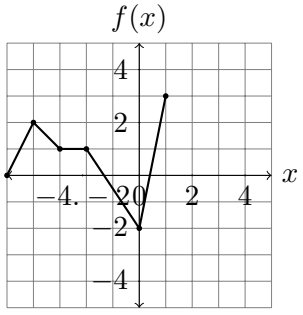


(b) Which of the following is the graph of $y = 2 + f(x)$?

(i)


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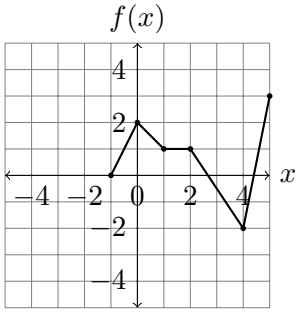

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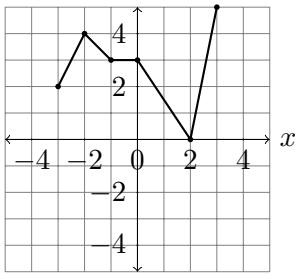
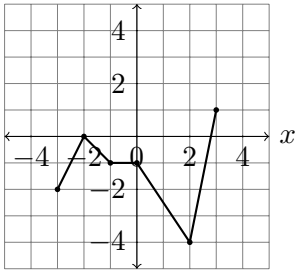
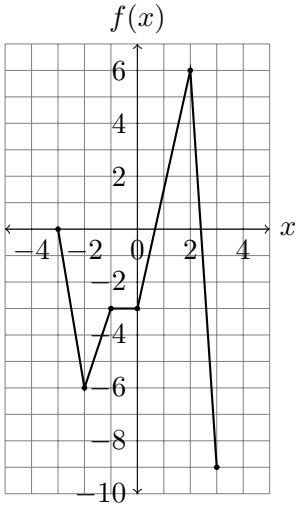


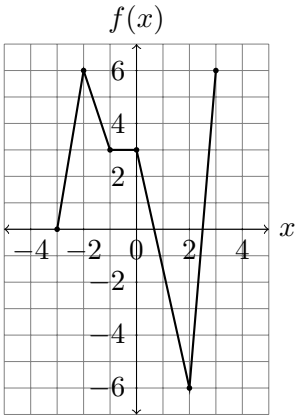
(iv)


(c) Which of the following is the graph of $y = -3f(x)$?

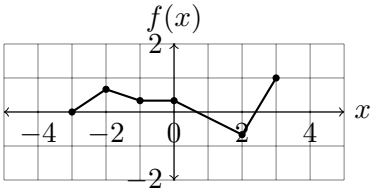
(i)



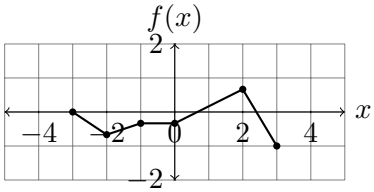
(ii)



(iii)

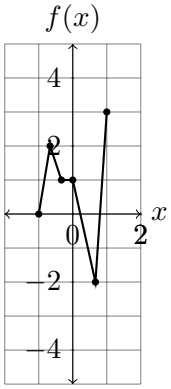


(iv)

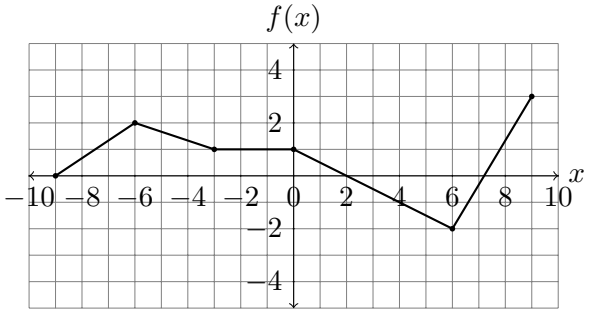


(d) Which of the following is the graph of $y = f(3x)$?

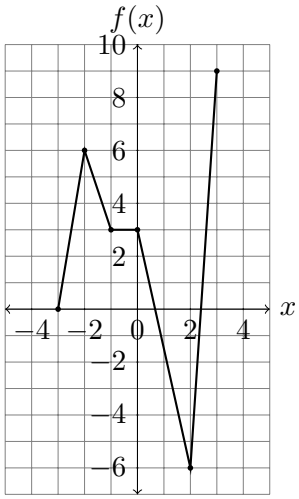
(i)



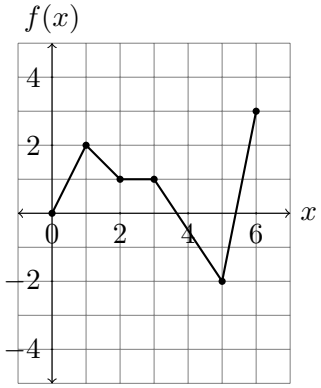
(ii)



(iii)



(iv)



(4) Explain how the graph of $y = \frac{-1}{2} f(x+1)$ is obtained from the graph of $y = f(x)$.

(a) Shrink the graph of $y = f(x)$ vertically by a factor of $\frac{1}{2}$, reflect the graph across the x-axis, then shift left 1 unit.

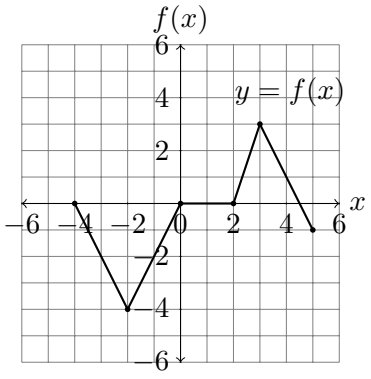
(b) Stretch the graph of $y = f(x)$ vertically by a factor of $\frac{1}{2}$, reflect the graph across the y-axis, then shift right 1 unit.

(c) Shrink the graph of $y = f(x)$ horizontally by a factor of $\frac{1}{2}$, reflect the graph across the x-axis, then shift right 1 unit.

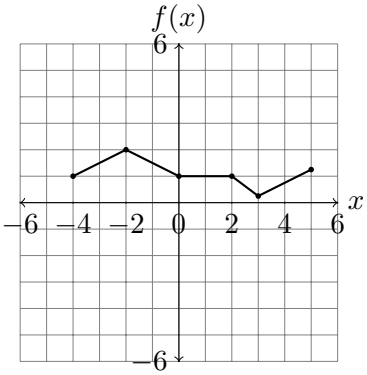
(d) Shrink the graph of $y = f(x)$ vertically by a factor of $\frac{1}{2}$, reflect the graph across the y-axis, then shift up 1 unit.

(e) Stretch the graph of $y = f(x)$ vertically by a factor of $\frac{1}{2}$, reflect the graph across the x-axis, then shift down 1 unit.

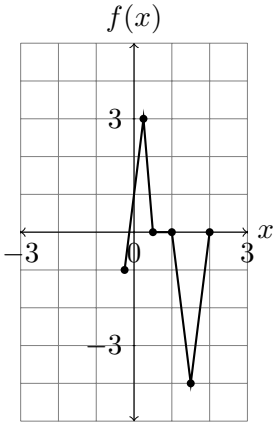
(5) Below is the graph of the function f. If $g(x) = -\frac{1}{4}f(x) + 1$, then which of the following graphs belong to $g(x)$.



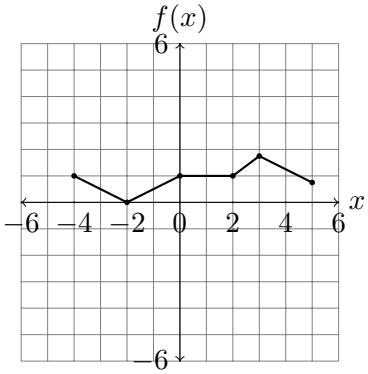
(a)



(b)



(c)



(d)