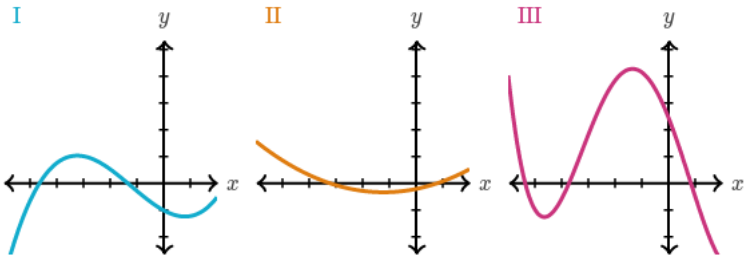
Shifts, Reflections and Scaling

Due: 9:55am August 7th, 2018

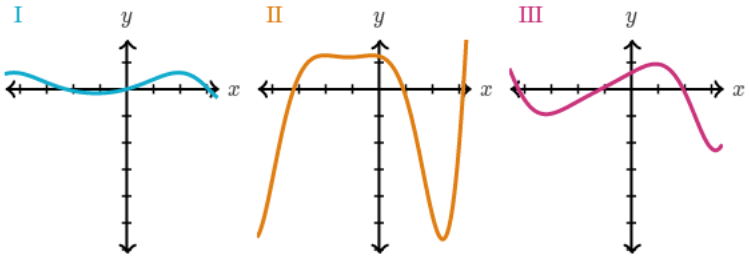
Problems to be turned in : 1, 2, 3(d),

Instructions: Write your name on this sheet. Write down answers on a sheet of paper and each question's answer should begin on a fresh sheet of paper. Staple all the sheets, including this sheet, and submit the same.

1. Suppose $y = f(x)$ and $c, d > 0$. Describe what "shift" occurs in the graph of the following functions[1] w.r.t. the graph of f:
   (a) $y = f(x) + d$
   (b) $y = f(x) - d$
   (c) $y = f(x - c)$
   (d) $y = f(x + c)$
2. Suppose $y = f(x)$ and $a, b > 0$. Describe what "reflection" and "scaling" happens to the graph of the following functions[2] w.r.t graph of f:
   (a) $y = af(x)$
   (b) $y = -af(x)$
   (c) $y = f(bx)$
   (d) $y = f(-bx)$
3. Let $f(x) = x^2$. Use Shifts, Reflection and Scaling discussed above to graph the following functions:
   (a) $y = f(3x)$
   (b) $y = f(x + 1) + 4$
   (c) $y = 2f(x)$
   (d) $y = 2f(3x + 1) + 4$.
4. In each of the pictures below identify[3] which of the graphs represents $f, f' f''$



(a)



(b)

[1] in one sentence of not more than 15 words
[2] in at most two sentences of not more than 15 words each
[3] No justification is required to be written.

Shifts, Reflections and Scaling

Due: 9:55am August 7th, 2018

Problems to be turned in : 1, 2, 3(d),4

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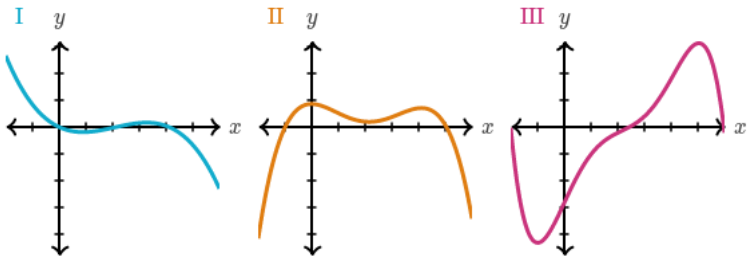
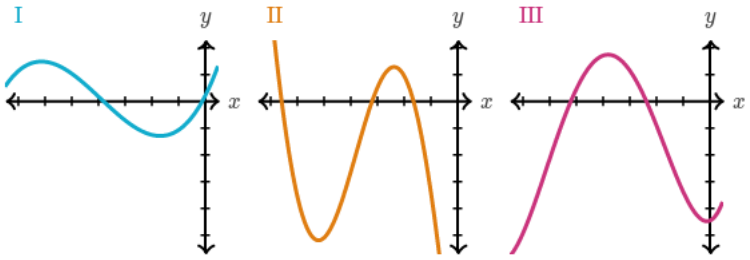
1. Suppose $y = f(x)$ and $c, d > 0$.Describe what "shift" occurs in the graph of the following functions[4] w.r.t. the graph of f:
   (a) $y = f(x) + d$
   (b) $y = f(x) - d$
   (c) $y = f(x - c)$
   (d) $y = f(x + c)$
2. Suppose $y = f(x)$ and $a, b > 0$. Describe what "reflection" and "scaling" happens to the graph of the following functions[5] w.r.t graph of f:
   (a) $y = af(x)$
   (b) $y = -af(x)$
   (c) $y = f(bx)$
   (d) $y = f(-bx)$
3. Let $f(x) = x^2$. Use Shifts, Reflection and Scaling discussed above to graph the following functions:
   (a) $y = f(4x)$
   (b) $y = f(x + 1) + 7$
   (c) $y = 6f(x)$
   (d) $y = 6f(4x + 1) + 7$.
4. In each of the pictures below identify[6] which of the graphs represents $f, f' f''$

(a)



(b)



[4] in one sentence of not more than 15 words
[5] in at most two sentences of not more than 15 words each
[6] No justification is required to be written.