

6. (12 points) A company that manufactures Justin Bieber action figures has a fixed cost of production of \$20,000 per month while its manufacturing cost is \$28 per case.

a. Find a function  $C(n)$  for the monthly total cost of production for  $n$  cases.

$y = cx^2$

$C(n) = 20000 + (28)n$

b. Evaluate  $C(16,000)$ . What does this represent?

$C(16000) = 20000 + (28)(16000)$

The total cost of production is 16000

c. Let  $P(n) = C(n)/n$ . Evaluate  $P(16,000)$ . What does this represent?

$16000 = \frac{20000 + (28)n}{n}$

7. (10 points) Given the function  $f(x) = \sqrt{x}$ , create a new function  $g(x)$  where the graph of  $g(x)$  is the graph of  $f(x)$ :

a. Shifted 3 units to the left, stretched vertically by a factor of 2.

$g(x) = 2(x+3)^2 + 4$

$f(x) = 2(x+3)^2 + 4$

b. Shifted 3 units to the left, stretched vertically by a factor of 2, and then shifted up 4 units.

$g(x) = 2(x+3)^2 + 4$

$2(x+3)^2 + 4$

c. Does the order in which these transformations are performed matter?

no it does not