

Math Quiz (not graded)

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1. Let p denote the price of the Mankiw text, n the number of copies of the text that were sold in 2002, and c the cost of producing one book. Assume p, n , and c are all positive numbers. If the relationship between n, c , and p is given by $n = c - 2p$, then **a)** the relationship is non-linear, **b)** as p rises, n has to fall, **c)** ♣ the relationship may be equivalently restated as $p = \frac{c - n}{2}$, **d)** the relationship may be equivalently restated as $-np = c - 2$.
2. Suppose $y = 2x - 1$. If you plot y on the vertical axis and x on the horizontal axis, then **a)** the point $(0, 0)$ is on the plotted graph, **b)** the point $(4, 7)$ is on the plotted graph, **c)** the plot is a straight line, **d)** ♣ both b and c are true
3. The slope of the line $c + 3m = 25$ (with c on the vertical axis and m on the horizontal axis) is **(a)** +5 for positive values of m , **(b)♣** -3 for all values of m , **(c)** -5 for some values of c , **(d)** $25/3$ for all values of c

4. Consider the equation

$$C_1 + \frac{C_2}{1+r} = Y_1 + \frac{Y_2}{1+r} \quad (1)$$

where Y_1, Y_2 , and r are positive constants. With respect to equation (1): When $C_1 = 0$, then C_2 is given by **(a)** $Y_1 + \frac{Y_2}{1+r}$, **(b)** $-(Y_1 + \frac{Y_2}{(1+r)^2})$, **(c)♣** $Y_1(1+r) + Y_2$, **(d)** none of the above

5. $x^{0.5}y^{0.5} =$ **a)** $(xy)^{0.25}$, **b)** $(xy)^{-0.5}$, **c)** xy , **d)** ♣ none of the above
6. $\sqrt{\frac{xy}{2z}} =$ **(a)♣** $\sqrt{x} \cdot \sqrt{y} \cdot \sqrt{0.5} \cdot z^{-1/2}$ **(b)** $\sqrt{\frac{xy}{2}} \cdot \sqrt{z}$ **(c)** $x^{1/2} \cdot y^{-1/2} \cdot \sqrt{2} \cdot z^{-1/2}$ **(d)** none of the above
7. Suppose $y = \frac{1}{2w} + 5$ and $y > 0$ and $w > 0$. Then **a)** the relationship between y and w is linear, **b)** ♣ as w rises, y has to fall, **c)** if you plot y against w , the graph will have slope equal to 2 always, and **d)** none of the above
8. Suppose $2k^{\frac{1}{\alpha}} = 50$, then $k^2 =$ **a)♣** $25^{2\alpha}$, **b)** $25^{\frac{1}{\alpha}}$, **c)** $(25)^{\alpha^2}$, **d)** 25^α

9. Consider the function F

$$Y = F(K, L) = AK^{\frac{1}{3}}L^{\frac{2}{3}}.$$

Assume K, A, L are all positive. If K increases to $2K$, L increases to $2L$, and A increases to $2A$, then Y , **(a)** goes up by $2A$, **(b)** increases by an amount which cannot be computed, **(c)** doubles, **(d)**♣ quadruples.

10. The slope of the function $y = Ax^\beta$ at the point $x = 2$ [note: A and β are constants and x and y are the variables] is **(a)** $A\beta$, **(b)** $2A\beta$, **(c)**♣ $\frac{\beta A}{2^{1-\beta}}$, **(d)** none of the above
11. The slope of the function $y = Ax^\beta$ **(a)** changes as A changes, **(b)** changes as β changes, **(c)** changes as x changes, **(d)**♣ all of the above
12. Consider the straight line described by $y = 2x - M$ where y and x are the two variables (x and y are positive numbers) and M is a positive constant. As M increases, **(a)** the slope of the line falls, **(b)**♣ the line shifts away from the origin, **(c)** the line shifts towards the origin, **(d)** both a and c are true