

Midterm Review 2

① $\frac{e}{c^2} = \frac{mc^2}{c^2}$ solve for m

$$\frac{e}{c^2} = m$$

② Solve for x $(x-6) - (3x+2) = 4(2x+2)$

$$x-6-3x-2 = 8x+8$$

$$-2x-8 = 8x+8$$

$$\begin{array}{r|l} -8x & -8x \\ \hline -10x-8 & 8 \end{array}$$

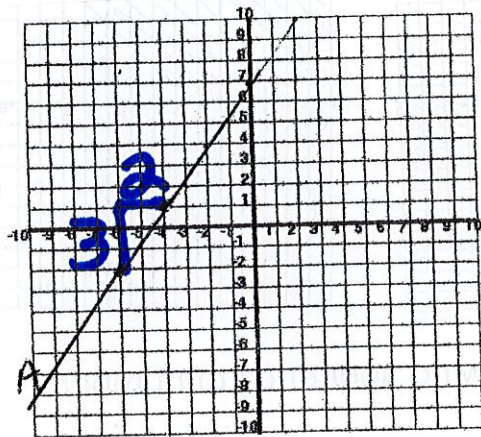
$$\begin{array}{r|l} -10x-8 & 8 \\ +8 & +8 \\ \hline -10x & 16 \end{array}$$

$$\frac{-10x}{-10} = \frac{16}{-10}$$

$$x = -\frac{8}{5}$$

$$x = -\frac{8}{5}$$

③



Find the slope of the line
given $m = \frac{3}{2}$

Find slope perpendicular
to the original slope

$$m = -\frac{2}{3}$$

opp reciprocal

- ④ Find the range for function $y = (3x-3)$ with the domain $5 \leq x \leq 10$

domain is x-values \Rightarrow plug into function

$$\begin{aligned}x=5 \quad y &= 3(5)-3 \\ y &= 15-3 \\ y &= 12\end{aligned}$$

$$\begin{aligned}x=10 \quad y &= 3(10)-3 \\ y &= 30-3 \\ y &= 27\end{aligned}$$

$$\text{Range } 12 \leq y \leq 27$$

- ⑤ $f(x) = 17,000(0.88)^x$

x represents years

but it gave you
15 months

convert to years = 1.3

$$f(x) = 17,000(0.88)^{1.3} = 14397.15$$

- ⑥ $f(6)$ represents the (n) $f(1) = 175,000$

$$f(1+1) = 0.4(175000) = 70000$$

$$f(2+1) = 0.4(70000) = 28000$$

$$f(3+1) = 0.4(28000) = 11200$$

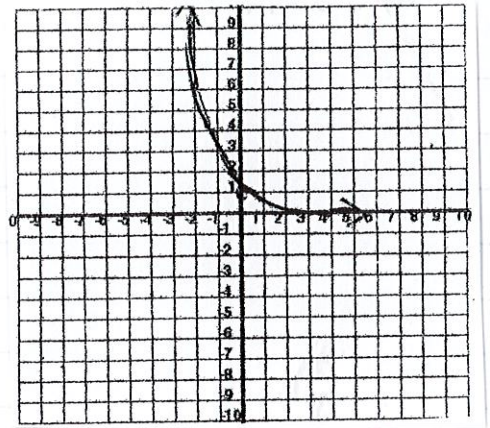
$$f(4+1) = 0.4(11200) = 4480$$

$$f(5+1) = 0.4(4480) = 1792$$

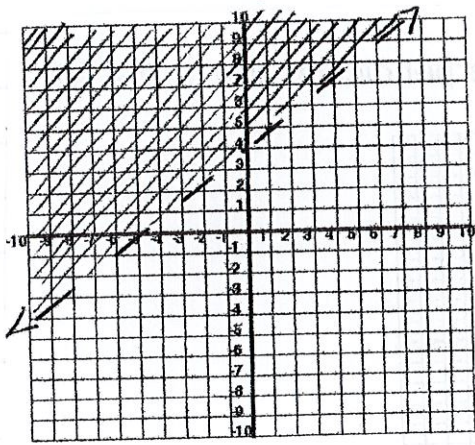
⑦ Which function is graphed?

Plug all equations into calculator to see which one matches graph

$$y = (1/4)^x$$



⑧ Which is graph of solutions $y > x + 4$



Greater than symbol $>$
* shade above
* dotted line

And line goes through the y-intercept $(0, 4)$

⑨ Write arithmetic sequence
 $2, -1, -4, -7$

difference = -3
 $a_1 =$ first term = 2

$$\begin{aligned} a_n &= a_1 + d(n-1) \\ &= 2 + (-3)(n-1) \\ &= 2 - 3n + 3 \\ &= -3n + 5 \end{aligned}$$

(10) function $f(x) = 25x + 15$

$x =$ number of days

Maximum days is 14

↳ \leq symbol

$$\begin{aligned} f(x) &= 25(14) + 15 \\ &= 365 \end{aligned}$$

$$0 \leq x \leq 365$$