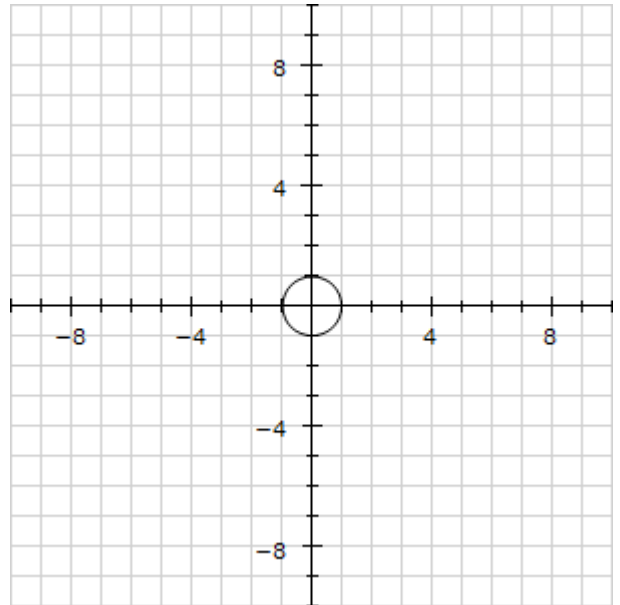
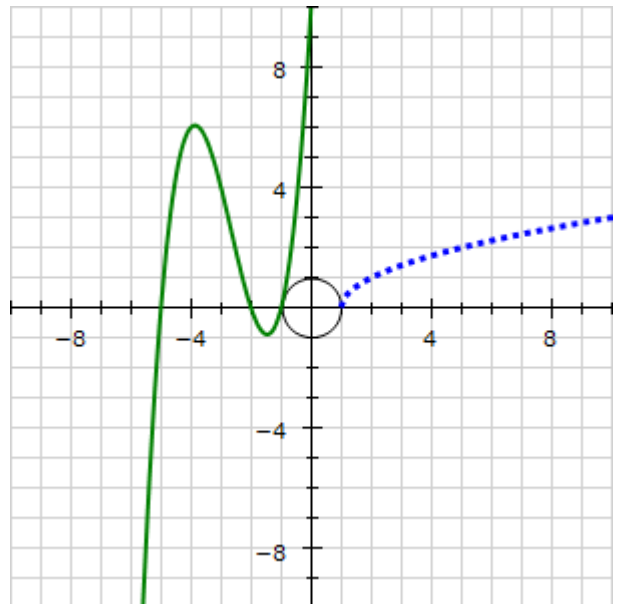


## Non-linear Graphs Practice #1

- Sketch:  $y = \frac{1}{2}x^2 + 1$
- Sketch:  $y = -|x - 2|$
- Sketch:  $y = \frac{3}{x+1} + 2$  for  $0 \leq x$
- Rewrite the function  $y = \frac{3}{x+1} + 2$  so that every point on it is shifted up by 4.



- Write the equation for the solid line.
- Write the equation for the dotted line.
- Write the equation for a function that passes through (1, 2), (2, 4), (3, 8) and (4, 16)

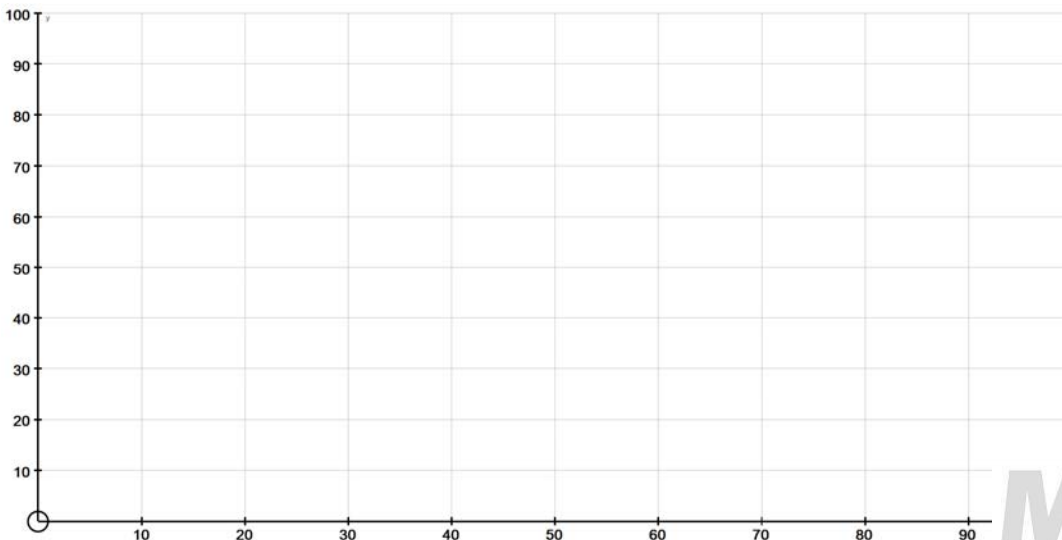


- A light bulb is found to give an output according to the formula:

$$W = 45 \times 0.95^{0.5t} + 50$$

where  $W$  is the power in Watts, and  $t$  is the time, in months

Sketch the function, and use that to find when the power drops to 70 Watts.



## Answers: Non-linear Practice #1

- Sketch:  $y = \frac{1}{2}x^{x+2} + 1$  - solid line  
asymptote  $y = 1$
- Sketch:  $y = -|x - 2|$  - dashed line  
 $x$  intercept  $(2, 0)$
- Sketch:  $y = \frac{3}{x+1} + 2$  for  $0 \leq x$  - dotted line  
asymptote  $y = 2$
- Rewrite the function  $y = \frac{3}{x+1} + 2$   
so that every point on it is shifted up by 4.  
 $y = \frac{3}{x+1} + 6$
- Write the equation for the solid line.  
 $y = (x + 1)(x + 2)(x + 5)$
- Write the equation for the dotted line.  
 $y = \sqrt{x - 1}$
- Write the equation for a function that passes:  
through  $(1, 2)$ ,  $(2, 4)$ ,  $(3, 8)$  and  $(4, 16)$   
 $y = 2^x$
- A light bulb is found to give an output  
according to the formula:

$$W = 45 \times 0.95^{0.5t} + 50$$

where  $W$  is the power in Watts, and  $t$  is the time, in months

Sketch the function, and use that to find when the power drops to 70 Watts.

