

Math III
Graphing Exponential Practice

Graph the function below and supply all the work asked for.

$y = -2(2)^x + 5$

Parent: $(2)^x$

Multiplier: $-2(2)^x$ (mult "y's" by -2)

Shift: $-2(2)^x + 5$ (5 up)

X - int: $(1.322, 0)$
(do algebraically show your work)

Y - int: $(0, 3)$

Asymptote: $y = 5$

y-int

$y = -2(2)^0 + 5$

$y = -2(1) + 5 = 3$

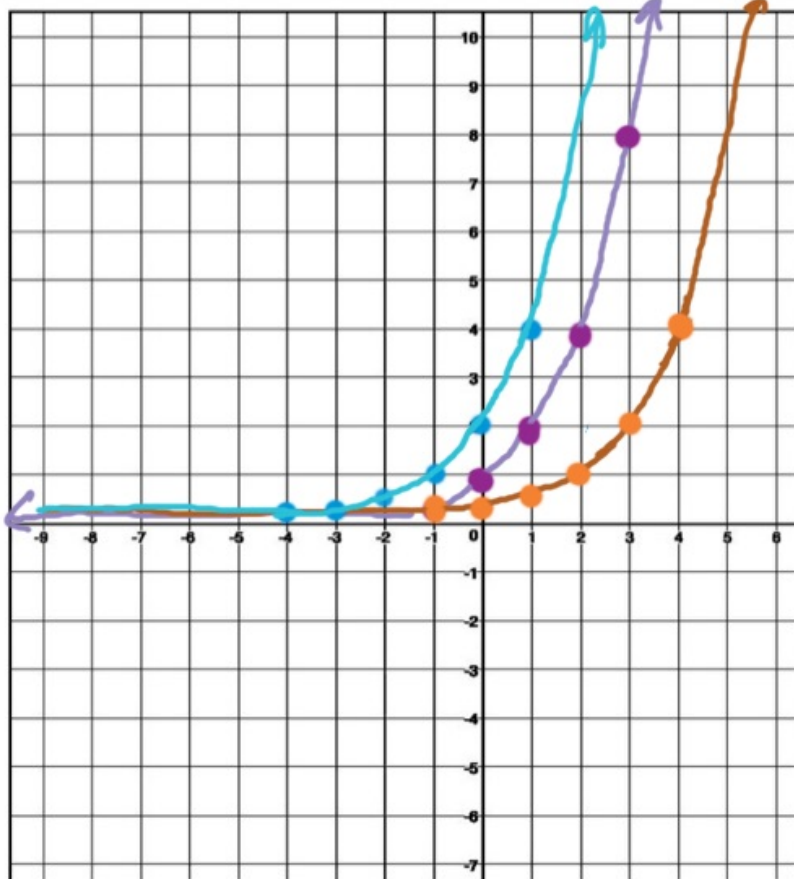
x-int

$2.5 = 2^x$

$\ln(2.5) = x \ln(2)$

$x = \frac{\ln(2.5)}{\ln(2)}$

$x \approx 1.322$ ←



Graph the function below and supply all the work asked for.

$$y = \frac{1}{4}(2)^{x+3}$$

Parent: 2^x

Multiplier: 1/4(2)^x (mult "y's" by 1/4)

Shift: 1/4(2)^{x+3} (left 3)

X - int: None.
(do algebraically show your work)

Y - int: (0, 2)

Asymptote: y = 0

Y-int

$$y = \frac{1}{4}(2)^{0+3}$$

$$y = \frac{1}{4}(2)^3$$

$$y = \frac{1}{4}(8)$$

$$y = 2$$

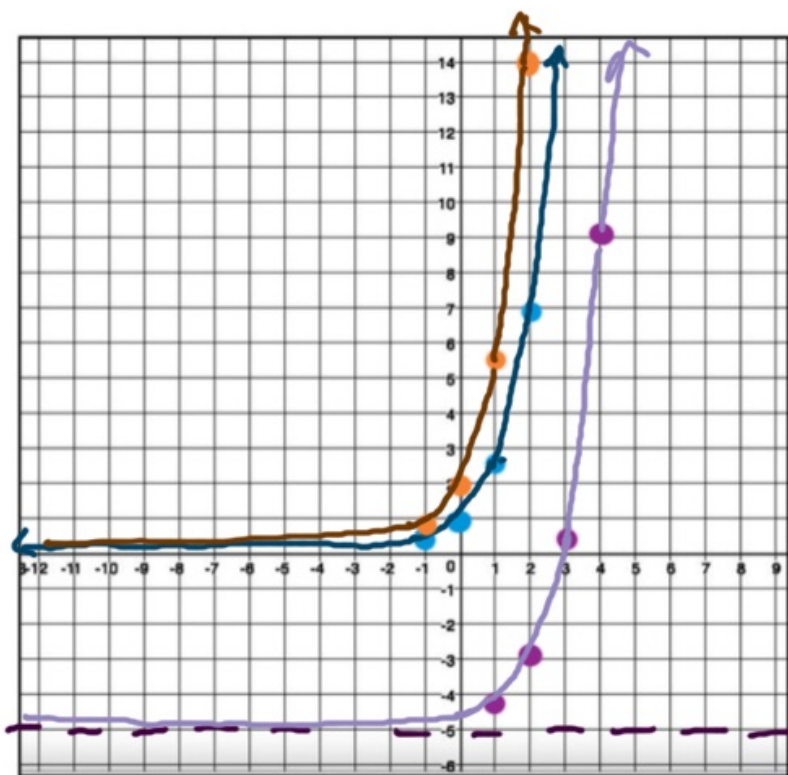
X-int

$$0 = \frac{1}{4}(2)^{x+3}$$

$$0 = 2^{x+3}$$

$$\ln(0) = (x+3)\ln(2)$$

∴ No solution ∴ No x-ints



Graph the function below and supply all the work asked for.

$$y = 2e^{x-2} - 5$$

Parent: e^x

Multiplier: $2e^x$

Shift: $2e^{x-2} - 5$

X - int: $(2.916, 0)$
(do algebraically show your work)

Y - int: $(0, -4.729)$

Asymptote: $y = -5$

$$y = 2e^{0-2} - 5 \approx -4.729$$

x-int

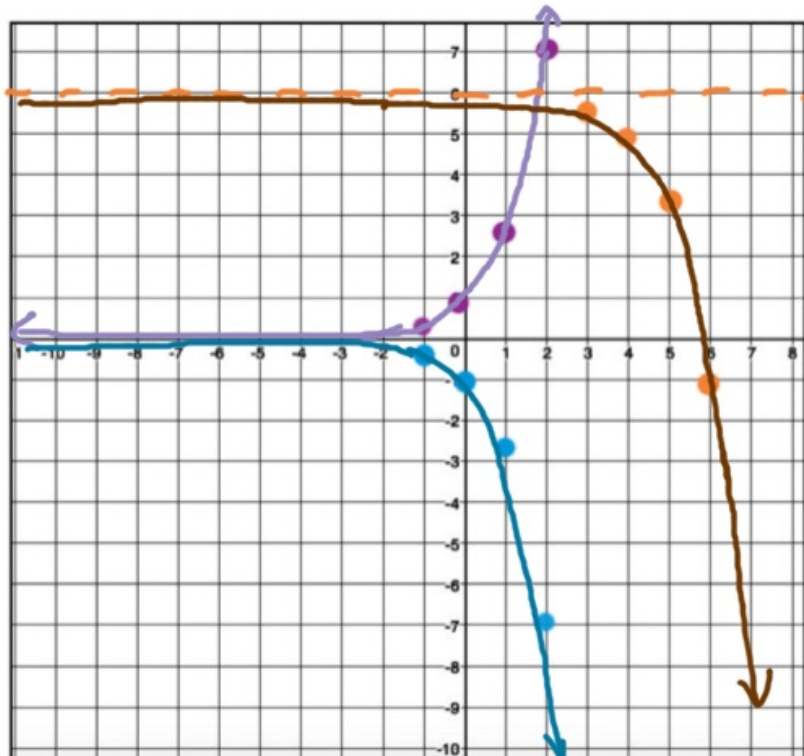
$$0 = 2e^{x-2} - 5$$

$$2.5 = e^{x-2}$$

$$\ln(2.5) = (x-2)\ln(e)$$

$$x = \ln(2.5) + 2$$

$$x \approx 2.916$$



Graph the function below and supply all the work asked for.

$$y = -e^{x-4} + 6$$

Parent: e^x

Multiplier: $-e^x$

Shift: $-e^{x-4} + 6$

X - int: _____
(do algebraically show your work)

Y - int: $(0, 5.982)$

Asymptote: $y = 6$

$$y = -e^{0-4} + 6$$

