

C12 - 7.1 - Exponents Laws HW

Simplify

$4^2 \times 4^3 =$

$3^2 \times 3^3 =$

$\frac{5^3}{5^2} =$

$\frac{7^3}{7^5} =$

$\frac{3^2}{81} =$

$(3^2)^4 =$

$(3x)^2 =$

$(x + 2)^2 =$

$\left(\frac{1}{3}\right)^2 =$

$\left(\frac{2}{5}\right)^2 =$

$5^0 =$

$6^0 =$

Change Base

$25 =$

$9 =$

$8 =$

$27 =$

Change to base 2

$16 =$

$4^2 =$

$16^2 =$

$27^2 =$

Change to base 4

$16 =$

$16^2 =$

64

$256 =$

Write as a single of power

$3^2 \times 4^2 =$

$2^2 \times 5^2 =$

Write as a multiplication of powers

$(2 \times 3)^x =$

$(6)^x =$

Write with a positive exponents

$5^{-3} =$

$\frac{3}{x^{-5}} =$

$2x^{-2} =$

$\left(\frac{2}{3}\right)^{-2} =$

Write with a negative exponents

$\frac{1}{5^2} =$

$\frac{1}{5} =$

$2^3 =$

$\frac{x}{3^2} =$

Change Base with negative exponent

$\frac{1}{25} =$

$\frac{1}{9} =$

$\frac{1}{16} =$

$\frac{1}{16} =$

C12 - 7.1 - Simplifying/Separating Exponents HW

Simplify to a single exponent

$$2^x \times 2 =$$

$$3^x \times 3 =$$

$$(6^2)^x =$$

$$(9^x)^2 =$$

$$\frac{2^x}{2} =$$

$$\frac{7^x}{7} =$$

$$\frac{5}{5^x} =$$

$$\frac{4}{4^x} =$$

$$5^{2x} \times 5 =$$

$$3^{2x} \times 3^x =$$

$$3^x \times 9 =$$

$$2^x \times 16 =$$

$$\frac{4^x}{8} =$$

$$\frac{4^x}{256} =$$

$$\frac{49}{7^x} =$$

$$\frac{81}{3^x} =$$

C12 - 7.1 - Simplifying/Separating Exponents HW

Separate into a multiplication/division/or use brackets with the same base. (*Isolate #^x*)

$3^{x+1} =$

$5^{x-1} =$

$2^{1-x} =$

$6^{2x+1} =$

$7^{2x} =$

$2^{2x+1} =$

$5^{x-1} =$

$6^{2x} =$

$3^{1-x} =$

$2^{2x+3} =$

$5^{x-3} =$

$7^{x+1} =$

$3^{2-2x} =$

$6^{3x} =$

$7^{3x+2} =$

$1^{2x} =$

Separate into a multiplication/division/or use brackets with the different bases. (*Isolate #^x*)

$6^x =$

$10^x =$

$14^x =$

$15^x =$

$8^x =$

$8^x =$

$12^x =$

$12^x =$

C12 - 7.1 - Simplifying/Separating Exponents HW

Simplify

$$\frac{2^3 \times 2^5}{2^2} =$$

$$\frac{4^8 \times 2^5}{32} =$$

$$\frac{8^3 \times 2^{10}}{256 \times 4^2} =$$

$$\frac{2^8 \times 2^{-3}}{16} =$$

$$\frac{8^{-1} \times 32^4}{64^{-2}} =$$

$$\frac{2^{-1} \times 16^{-4}}{128^{-2}} =$$

$$\frac{2^{2x+1} \times 2^2}{2^x} =$$

$$\frac{4^x \times 8}{2} =$$

$$\frac{3^{3x+2}}{3^{x+1}} =$$

$$\frac{5^{4x-1}}{125^x} =$$

$$\frac{4^x \times 8^{3x+1}}{16^{2x+3}} =$$

C12 - 7.2 - Separate/Factoring/Solving Exponents Notes

Solve for x

$$3^x = 27^2$$

$$2^x = 16^2$$

$$5^x 5^2 = 5^5$$

$$3^x 3 = 3^5$$

$$4^{x+1} = 2 \times 8^{2x-5}$$

$$64^{x+1} = 4^{2x}$$

$$16^{2x+1} = 2^{2x}$$

$$\left(\frac{1}{3}\right)^{-x-1} = 27^{2x-8}$$

$$7 \times 3^{2x^2+5x} = \frac{7}{9}$$

C12 - 7.2 - Separate/Factoring/Solving Exponents Notes

Solve for x

$$5^{x^2-5} = 625$$

$$5^{x^2-x} = 1$$

$$3^{x^2+x} = 9$$

$$x = \pm 3$$

$$x = 0, 1$$

$$x = 1, -2$$

$$3^{x^2-1} = 27$$

$$4^{x^2-3x} = 1$$

$$5^{x^2-3x} = \frac{1}{25}$$

$$x = \pm 2$$

$$x = 0, 3$$

$$x = 2, 1$$

C12 - 7.2 - Separate/Factoring/Solving Exponents Notes

Solve for x

$$5(2^x) + 2^x = 48$$

$$3^x + 4(3^x) - 45 = 0$$

$$-3(5^x) = 2(5^x) - 5$$

$$x=3$$

$$x=2$$

$$x=0$$

$$3^x + 3^{x+1} = 108$$

$$2^x - 2^{x+3} + 15 = 0$$

$$9^{x+2} - 243 = 81^x - 9$$

$$x=3$$

$$x=1$$

$$x=.5$$

C12 - 7.2 - Separate/Factoring/Solving Exponents Notes

Solve for x

$$(2^x)^2 - 6(2^x) + 8 = 0$$

$$(3^x)^2 - 2(3^x) - 3 = 0$$

$$x=1,2$$

$$3^{2x} - 4(3^x) = -3$$

$$x=1$$

$$4^{2x} = 3(4^x) - 2$$

$$x=1,0$$

$$x=1/2,0$$

C12 - 7.2 - Separate/Factoring/Solving Exponents Notes

Solve for x

$$5^x - 5^{x-1} - 4 = 0$$

$$10 - 3^x = 3^{2-x}$$

$$x=1$$

$$x=2,0$$

$$7^x - 28(7^{-x}) = 3$$

$$3(3^x)^2 - 7(3^x) + 2 = 0$$

$$x=1$$

$$x=-1, 0.6309$$

C12 - 7.2 - Separate/Factoring/Solving Exponents Notes

Solve for x

$$4^{x+1} - 5(2^{x+2}) + 16 = 0$$

$$6^x - 4(3^x) - 3(2^x) + 12 = 0$$

$$x=0,2$$

$$x=1,2$$

$$(2^x)^2 - 4 = 0$$

$$(3^x)^2 - 6(3^x) + 9 = 0$$

$$x=1$$

$$=1$$

C12 - 7.3 - Word Problems HW

If you deposit \$1000 in the bank for five years at 10% interest how much will you have after 5 years?

If you deposit \$2000 in the bank for five years at 8% interest how much will you have after 10 years?

If you deposit \$5000 in the bank for five years at $\frac{1}{2}\%$ interest how much will you have after 50 years?

If you deposit \$100 in the bank, how long will it take to grow to \$51200 if it doubles each year?

How many times as intense is an earthquake of 7.0 than 4.0?

An earth quake in California of Richter 8.5 Magnitude was 100 times as strong as an earth quake in Vancouver of what Richter Magnitude.

C12 - 7.3 - Word Problems HW

If you deposit \$3000 in the bank for eight years at 12% interest, compounded monthly, how much will you have after 8 years?

If you deposit \$8000 in the bank for five years at 4% interest, compounded quarterly, how much will you have after 2 years?

If a population starts at 100 and doubles every five hours, how large will the population grow in 20 hours?

How long to triple your money at 8%

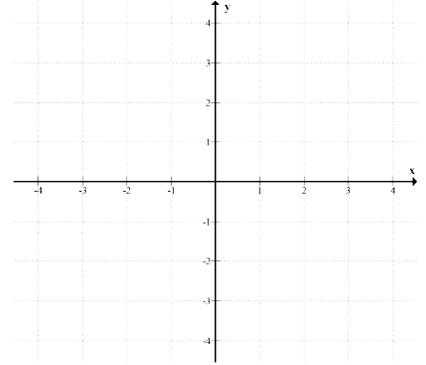
If the population starts at 500 and grows continuously at a rate of 0.04, how large will it grow after 30 days?

C12 - 7.4 - Exponent 2^x Reflections Graphs HW

Draw the following graphs using a table of values.

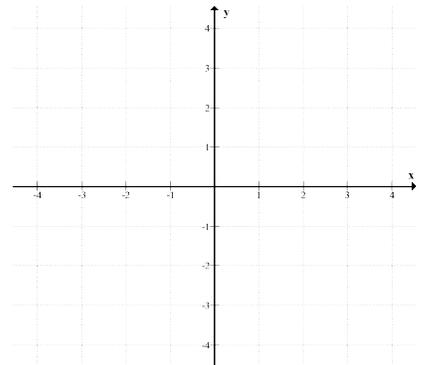
$$y = 2^x$$

| x | y |
|-----|-----|
| -1 | |
| 0 | |
| 1 | |
| 2 | |



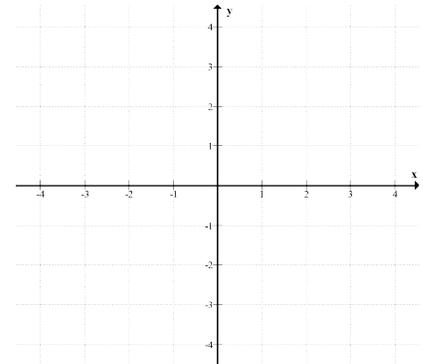
$$y = 2^{-x}$$

| x | y |
|-----|-----|
| -2 | |
| -1 | |
| 0 | |
| 1 | |



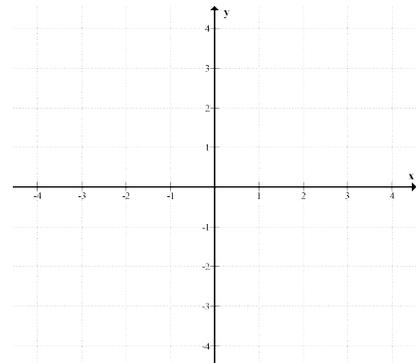
$$y = -2^x$$

| x | y |
|-----|-----|
| -1 | |
| 0 | |
| 1 | |
| 2 | |



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

| x | y |
|-----|-----|
| -2 | |
| -1 | |
| 0 | |
| 1 | |

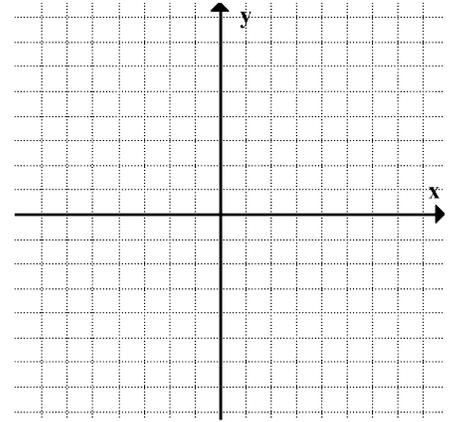


C12 - 7.4 - Exponent 3^x Reflections Graphs HW

Draw the following graphs using a table of values.

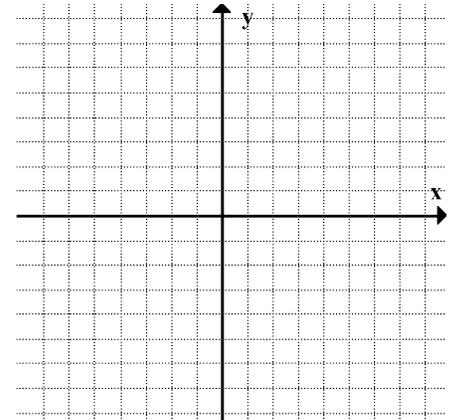
$$y = 3^x$$

| x | y |
|-----|-----|
| -1 | |
| 0 | |
| 1 | |
| 2 | |



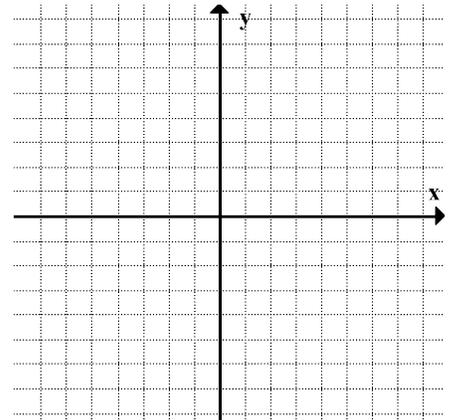
$$y = 3^{-x}$$

| x | y |
|-----|-----|
| -2 | |
| -1 | |
| 0 | |
| 1 | |



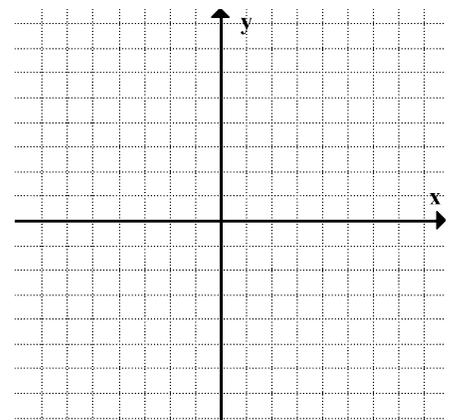
$$y = -3^x$$

| x | y |
|-----|-----|
| -1 | |
| 0 | |
| 1 | |
| 2 | |



$$y = -3^{-x}$$

| x | y |
|-----|-----|
| -2 | |
| -1 | |
| 0 | |
| 1 | |

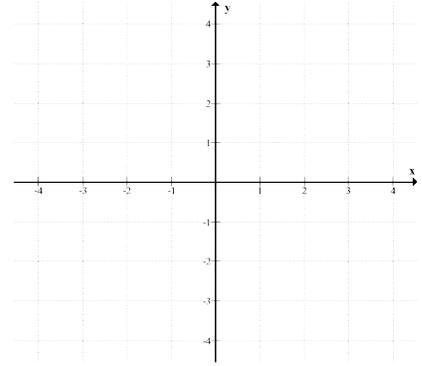


C12 - 7.4 - 2^x Translations Reflections Graphs HW

Draw the following graphs using a table of values.

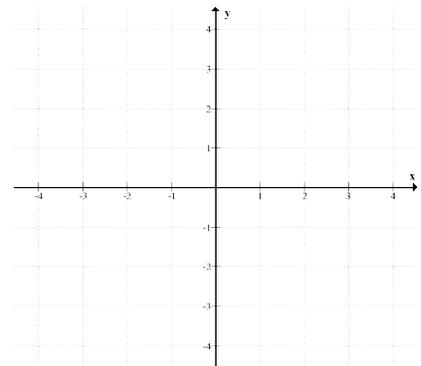
$$y = 2^x + 1$$

| x | y |
|-----|-----|
| -1 | |
| 0 | |
| 1 | |
| 2 | |



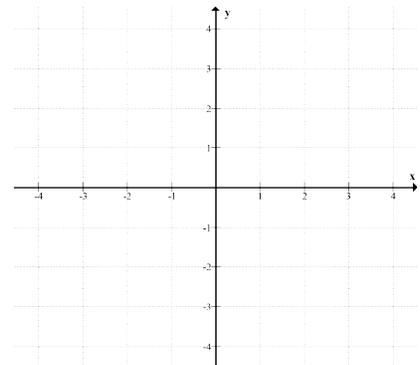
$$y = 2^{-x} - 2$$

| x | y |
|-----|-----|
| -2 | |
| -1 | |
| 0 | |
| 1 | |



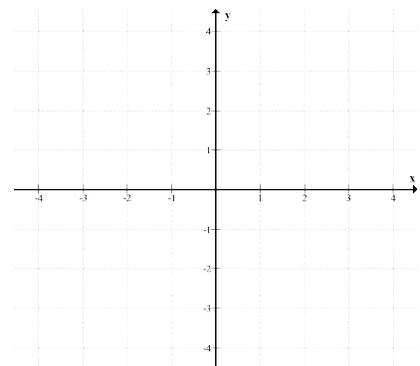
$$y = -2^{x+1}$$

| x | y |
|-----|-----|
| -1 | |
| 0 | |
| 1 | |
| 2 | |



$$y = 2^{-x+2} - 2$$

| x | y |
|-----|-----|
| -2 | |
| -1 | |
| 0 | |
| 1 | |

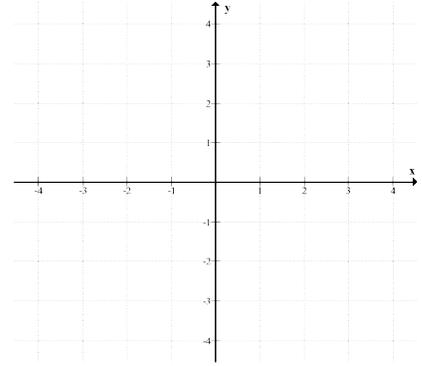


C12 - 7.4 - 2^x Transformations Graphs HW

Draw the following graphs using a table of values.

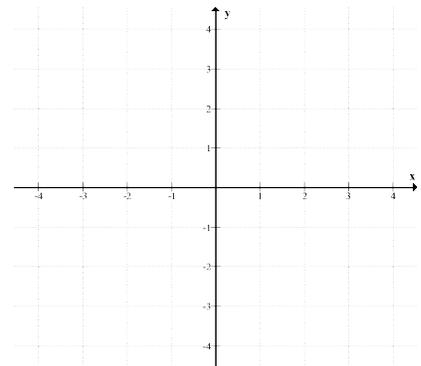
$$y = 2(2)^x$$

| x | y |
|-----|-----|
| -1 | |
| 0 | |
| 1 | |
| 2 | |



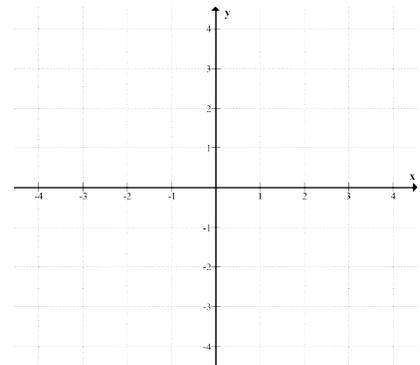
$$y = 2^{2x}$$

| x | y |
|-----|-----|
| -2 | |
| -1 | |
| 0 | |
| 1 | |



$$y = 2^{2x+4}$$

| x | y |
|-----|-----|
| -1 | |
| 0 | |
| 1 | |
| 2 | |



$$y = 2^{-\frac{1}{2}x+2} - 1$$

| x | y |
|-----|-----|
| -2 | |
| -1 | |
| 0 | |
| 1 | |

