## Practice Worksheet:

## Graphing Logarithmic Functions

| Score: | First attempt due: |
| :--- | :--- |
|  | Final corrections due: |

Without a calculator, match each function with its graph.
$\qquad$ 1. $f(x)=\log _{2} x$
2. $f(x)=\log _{2}(-x)$
3. $f(x)=2 \log _{2} x$
4. $f(x)=\frac{1}{2} \log _{2} x$

5. $f(x)=2 \log _{2}(-x)$
6. $f(x)=-2 \log _{2} x$
A.
B.

C.

D.

E.

F.


Graph without a calculator by finding all info below. Label all points and dash in asymptote on graph.
7. $f(x)=3 \log _{\frac{1}{3}} x+2$
$\mathrm{a}=\mathrm{b}=\mathrm{c}=\mathrm{h}=\mathrm{k}=\quad$
Domain:
Asymptote:

| Anchor <br> points | Multiply y <br> by | Divide x <br> by | Add <br> to x | Add <br> to y |
| :---: | :---: | :---: | :---: | :---: |
| $\left(\begin{array}{l}, 0)\end{array}\right.$ |  |  |  |  |
| $\left(\begin{array}{l}\text { to }\end{array}\right.$ |  |  |  |  |
| $(-1)$ |  |  |  |  |


8. $f(x)=-\log _{3}\left(-\frac{1}{3} x\right)$
$\mathrm{a}=\mathrm{b}=\mathrm{c}=\mathrm{h}=\mathrm{k}=$
Domain:
Asymptote:
Range:

| Anchor <br> points | Multiply y <br> by | Divide x <br> by | Add <br> to x | Add <br> to y |
| :---: | :---: | :---: | :---: | :---: |
| $\left(\begin{array}{lr}\text { to }\end{array}\right.$ |  |  |  |  |
| $(r,-1)$ |  |  |  |  |
| $(r-1)$ |  |  |  |  |


9. $f(x)=-2 \log _{\frac{1}{2}}(x-3)-3$
$\mathrm{a}=\mathrm{b}=\mathrm{c}=\mathrm{h}=\mathrm{k}=$ Domain:
Asymptote: Range:

| Anchor <br> points | Multiply y <br> by | Divide x <br> by | Add <br> _ to x | Add <br> _ to y |
| :---: | :---: | :---: | :---: | :---: |
| $\left(\begin{array}{r}(0)\end{array}\right.$ |  |  |  |  |
| $\left(\begin{array}{l}1)\end{array}\right.$ |  |  |  |  |
| $(,-1)$ |  |  |  |  |


10. $f(x)=-\log _{3}(3 x-6)$
$\mathrm{a}=\mathrm{b}=\mathrm{c}=\mathrm{h}=\mathrm{k}=$ Domain:
Asymptote: Range:

| Anchor <br> points | Multiply y <br> by ___ | Divide x <br> by __ | Add <br> to x | Add <br> to y |
| :---: | :---: | :---: | :---: | :---: |
| $\left(\begin{array}{l}\text { b }\end{array}\right.$ |  |  |  |  |
| $(\quad, 1)$ |  |  |  |  |
| $(\quad,-1)$ |  |  |  |  |


11. $f(x)=2 \log _{6}(-x)+3$
$\mathrm{a}=\mathrm{b}=\mathrm{c}=\mathrm{h}=\mathrm{k}=$ Domain:
Asymptote:
Range:

| Anchor points | Multiply y <br> by $\qquad$ | Divide x <br> by $\qquad$ | $\begin{gathered} \text { Add } \\ \ldots \quad \text { to } \mathrm{x} \end{gathered}$ | $\begin{gathered} \text { Add } \\ \quad \text { to } y \end{gathered}$ |
| :---: | :---: | :---: | :---: | :---: |
| ( ,0) |  |  |  |  |
| ( ,1) |  |  |  |  |
| ( ,-1) |  |  |  |  |


12. $f(x)=2 \log _{4}(-x+4)+2$
$\mathrm{a}=\mathrm{b}=\mathrm{c}=\mathrm{h}=\mathrm{k}=\quad$ Domain:
Asymptote:
Range:

| Anchor <br> points | Multiply y <br> by ___ | Divide x <br> by | Add <br> to x | Add <br> to y |
| :---: | :---: | :---: | :---: | :---: |
| $\left(\begin{array}{lr}-0)\end{array}\right.$ |  |  |  |  |
| $(, 1)$ |  |  |  |  |
| $(r-1)$ |  |  |  |  |



