Graphing Logarithmic Functions Practice

For problems 1-10, graph the function using Desmos.com then state the asymptote, domain, and range of each function.

State any transformations (how the graph moves) for each function. You do NOT have to draw the graphs.

1. $y = log_5 x$

Asymptote: $x=0$ Domain: $(0, \infty)$ Range: $(-\infty, \infty)$

Transformations: none

2. $y = log_2(x+1)$

Asymptote: $x=-1$ Domain: $(-1, \infty)$ Range: $(-\infty, \infty)$

Transformations: left 1

3. $y = \log(x) - 4$

Asymptote: $x=0$ Domain: $(0, \infty)$ Range: $(-\infty, \infty)$

Transformations: down 4

4. $y = log_{\frac{1}{3}}(x-1) + 3$

Asymptote: $x=1$ Domain: $(1, \infty)$ Range: $(-\infty, \infty)$

Transformations: right 1, up 3

5. $y = -log_{\frac{1}{2}}(x+3) - 5$

Asymptote: $x=-3$ Domain: $(-3, \infty)$ Range: $(-\infty, \infty)$

Transformations: reflect over x-axis, left 3, down 5

6. $y = log_4(2-x) + 2$ $y = \log_4(-(x-2)) + 2$

Asymptote: $x=2$ Domain: $(-\infty, 2)$ Range: $(-\infty, \infty)$

Transformations: reflect over y-axis, right 2, up 2

7. $y = \ln(x+6) - 1$

Asymptote: $x=-6$ Domain: $(-6, \infty)$ Range: $(-\infty, \infty)$

Transformations: left 6, down 1

8. $y = -\ln(x-1)+3$

Asymptote: $x=1$ Domain: $(1,\infty)$ Range: $(-\infty,\infty)$

Transformations: right 1, up 3

9. $y = \log(1-x)+3$ $y = \log(-(x-1))+3$

Asymptote: $x=1$ Domain: $(-\infty,1)$ Range: $(-\infty,\infty)$

Transformations: reflect over y-axis, right 1, up 3

10. $y = \log(x+2)-4$

Asymptote: $x=-2$ Domain: $(-2,\infty)$ Range: $(-\infty,\infty)$

Transformations: left 2, down 4