[illegible] Transformations [illegible]

Name: Key

Given $f(x) = 4^x$, find $g(x)$ when the function is....

1) Translated 2 units down
$g(x) = 4^x - 2$

2) Translated 3 units to the right
$g(x) = 4^{(x-3)}$

3) reflected over the x-axis
$g(x) = -(4^x)$
$g(x) = -4^x$

4) reflected over the y-axis
$g(x) = 4^{(-x)}$

5) vertically stretched by 2
$g(x) = 2(4^x)$

6) vertically compressed by $\frac{2}{3}$
$g(x) = \frac{2}{3}(4^x)$

7) horizontally stretched by 3
$g(x) = 4^{(\frac{1}{3}x)}$

8) horizontally compressed by $\frac{1}{3}$
$g(x) = 4^{(3x)}$

Given $f(x) = \log_3 x$, find $g(x)$ when the function is....

1) Translated 2 units down and 7 units right
$g(x) = \log_3(x-7) - 2$

2) Translated 3 units to the left and 5 units up
$g(x) = \log_3(x+3) + 5$

3) reflected over the x-axis
$g(x) = -\log_3 x$

4) reflected over the y-axis
$g(x) = \log_3(-x)$

5) vertically stretched by 4
$g(x) = 4\log_3 x$

6) vertically compressed by $\frac{2}{5}$
$g(x) = \frac{2}{5}\log_3 x$

7) horizontally stretched by 2
$g(x) = \log_3(\frac{1}{2}x)$

8) horizontally compressed by $\frac{1}{3}$
$g(x) = \log_3(3x)$

9) horizontally compressed by $\frac{3}{4}$
$g(x) = \log_3(\frac{4}{3}x)$

10) translated 8 units right and 2 units down
$g(x) = \log_3(x-8) - 2$