Find the Domain and Range of each:

1. $f(x) = 3(x-4)^2 - 6$

$D: \{x \in \mathbb{R}\}$

$R: \{f(x) \in \mathbb{R} \mid f(x) \geq -6\}$

2. $g(x) = -\frac{1}{2}(x+3)^2 + 12$

$D: \{x \in \mathbb{R}\}$

$R: \{g(x) \in \mathbb{R} \mid g(x) \leq 12\}$

3. $f(x) = -4\sqrt{3x+15} + 8$

$3(x+5)$

$D: \{x \in \mathbb{R} \mid x \geq -5\}$

$R: \{f(x) \in \mathbb{R} \mid f(x) \leq 8\}$

4. $g(x) = 5\sqrt{-2x+22} - 7$

$-2(x-11)$

$D: \{x \in \mathbb{R} \mid x \leq 11\}$

$R: \{g(x) \in \mathbb{R} \mid g(x) \geq -7\}$

5. $f(x) = -3|x-3| - 5$

$D: \{x \in \mathbb{R}\}$

$R: \{f(x) \in \mathbb{R} \mid f(x) \leq -5\}$

6. $g(x) = 8|3x-6| + 128$

$D: \{x \in \mathbb{R}\}$

$R: \{g(x) \in \mathbb{R} \mid g(x) \geq 128\}$

7. $f(x) = \frac{-4}{3x+21} + 8$

$3(x+7)$

$D: \{x \in \mathbb{R} \mid x \neq -7\}$

$R: \{f(x) \in \mathbb{R} \mid f(x) \neq 8\}$

8. $g(x) = \frac{2}{-7x-28} - 5$

$-7(x+4)$

$D: \{x \in \mathbb{R} \mid x \neq -4\}$

$R: \{g(x) \in \mathbb{R} \mid g(x) \neq -5\}$