$\qquad$

A transformed function is given. For each equation, state the parent function, transformations, and attributes of the given transformed equation.

1. $f(x)=2|x+1| \quad 5$

Parent Function:
Increasing:
x-intercept(s):

Transformations:
Decreasing:
$y$-intercept:

Domain:

Range:
Right End Behavior:
Maximum:

Minimum:
2. $f(x)=2(x+4)^{2} \quad 3$

| Parent Function: | Increasing: | x -intercept(s): |
| :--- | :--- | :--- |
| Transformations: | Decreasing: | y -intercept: |
| Domain: | Left End Behavior: | Maximum: |
| Range: | Right End Behavior: | Minimum: |
| 3. $f(x)=\sqrt{x+3}+3$ |  |  |

Parent Function:
Increasing:
x-intercept(s):

Transformations:
Decreasing:
$y$-intercept:

Domain:
Left End Behavior:
Maximum:

Range:
Right End Behavior:
Minimum:
4. $f(x)=\left(\begin{array}{ll}x & 2\end{array}\right)^{3}+1$

| Parent Function: | Increasing: | x-intercept(s): |
| :--- | :--- | :--- |
| Transformations: | Decreasing: | y-intercept: |
| Domain: | Left End Behavior: | Maximum: |
| Range: | Right End Behavior: | Minimum: |

5. $f(x)=2 \sqrt[3]{x}+1$

Parent Function:

Transformations:

Domain:

Range:
6. $f(x)=2^{x^{3}}+1$

Parent Function:

Transformations:

Domain:

Range:

Factor Completely
7. $r^{2}+10 r$
10. $5 x^{2}-13 x-28$
8. $p^{2}-10 p+21$
9. $3 n^{4}+16 n^{3}+5 n^{2}$
12. $20 p^{3}+40 p^{2}-105 p$

