Unit 10 Review
Secondary Math 3 Lite

Name: $\qquad$
Date: $\qquad$ Class:

Determine if the given value is a zero of the function using synthetic division

1. $\mathrm{x}=-2, f(x)=2 x^{3}+8 x^{2} \quad 22 x \quad 60$
2. $\mathrm{x}=2, f(x)=x^{3} \quad 3 x^{2} \quad x+3$

State the degree, zeros, and x -intercepts from the following
3. $f(x)=x(x+3)^{2}\left(\begin{array}{ll}x & 1\end{array}\right)$
4. $f(x)=(x+3)(x+2)\left(\begin{array}{ll}x & 6\end{array}\right)$
Degree:
Degree:
Zeros:
Zeros:
x-intercepts: x-intercepts:

State the degree, zeros, and x-intercepts after factoring
5. $f(x)=x^{3}+4 x^{2}+4 x$
6. $f(x)=x^{3} \quad 2 x^{2} \quad 3 x$

Degree:
Zeros:
x-intercepts:
7. $f(x)=x^{3} \quad 8 x^{2}+16 x$

Degree:
Zeros:
x-intercepts:

Zeros:
x-intercepts:
8. $f(x)=x^{3}+2 x^{2} \quad 8 x$

Degree:

Degree:
Zeros:
x-intercepts:

Write a function in factored form with the given zeros
9. $x=2,5,-7$
10. $x=4,2,-3$
11. $x=1,4$

For the following functions, find the zeros, state the multiplicity at each zero, and sketch a graph by hand using the degree and end behavior
12. $f(x)=(x+2)^{2}\left(\begin{array}{ll}x & 1\end{array}\right)$

| Zeros | Multiplicity | Intersection |
| :--- | :--- | :--- |
|  |  |  |
|  |  |  |


13. $h(x)=x(x+3)^{2}\left(\begin{array}{ll}x & 2\end{array}\right)^{3}$

| Zeros | Multiplicity | Intersection |
| :--- | :--- | :--- |
|  |  |  |
|  |  |  |
|  |  |  |



Given one zero, find all other zeros by doing synthetic division and then factoring
14. $\mathrm{x}=-1, \quad f(x)=x^{3}+2 x^{2} \quad 11 x \quad 12$
15. $\mathrm{x}=3, f(x)=x^{3}+3 x^{2} \quad 10 x$
24
16. $\mathrm{x}=5, f(x)=x^{3} \quad 2 x^{2} \quad 19 x+20$
17. $\mathrm{x}=3, f(x)=x^{3} \quad 4 x^{2}+x+6$

