PreCalc **Name**_____

WS: Summer Work Extra Practice **Date**_____ **Block**_____

In 1 – 4, factor completely.

1. $x^3 + 13x^2 + 42x$

2. $5a^2 - 12a - 9$

3. $6n^2 - 19n + 8$

4. $24m^3 - 54m$

In 5 – 6, solve by factoring and then sketch.

5. $8a^2 - 64 = -56a$

6. $-18 = v^2 + 9v$

In 7 – 10, simplify completely.

7. $8\sqrt{108}$

8. $\sqrt{15} \cdot \sqrt{10}$

9. $\dfrac{\sqrt{5}}{4\sqrt{3}}$

10. $\dfrac{5}{\sqrt{2} - 5}$

In 11 – 12, solve by finding square roots.

11. $9m^2 + 10 = 658$

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

In 13, evaluate the discriminant and state how many solutions and of what type.

13. $4r^2 - 4r - 3 = -6$

In 14 – 15, solve using the quadratic formula. Answers should be given in simplest radical form, when necessary.

14. $2x^2 - 9 = 6x + 1$

15. $9x^2 - 6x - 3 = 18x - 19$

In 16 – 20, perform the indicated operation.

16. $\dfrac{k^2 + 7k + 6}{4k + 32} \cdot \dfrac{k^2 + 3k - 40}{k^2 + k - 30}$

17. $\dfrac{5}{6x^3} \div \dfrac{10}{6x}$

18. $\dfrac{n-6}{n+4} + \dfrac{4n}{5}$

19. $\dfrac{5}{x-5} - \dfrac{4}{x+2}$

20. $\dfrac{\dfrac{u^2}{2} + \dfrac{1}{u}}{\dfrac{u-1}{4}}$