PreCalc
WS: Summer Work Extra Practice

Name _Key_
Date _9/7, 9/8_ Block _1A, 2B_
2017

In 1 – 4, factor completely.

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

$$x(x+6)(x+7)$$

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

$$(5a+3)(a-3)$$

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

$$(3n-8)(2n-1)$$

4. $24m^3 - 54m$

$$6m(2m+3)(2m-3)$$

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

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

$$8(a+8)(a-1) = 0$$
$$a = \{-8, 1\}$$

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

$$(v+6)(v+3) = 0$$
$$v = \{-6, -3\}$$

In 7 – 10, simplify completely.

7. $8\sqrt{108}$

$$48\sqrt{3}$$

8. $\sqrt{15} \cdot \sqrt{10}$ $5\sqrt{6}$

9. $\dfrac{\sqrt{5}}{4\sqrt{3}}$ $\dfrac{\sqrt{15}}{12}$

10. $\dfrac{5}{\sqrt{2}-5}$ $\dfrac{-5\sqrt{2}-25}{23}$

In 11 – 12, solve by finding square roots.

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

$$m = \pm 6\sqrt{2}$$

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

$$x = 2 \pm 3\sqrt{3}$$

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

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

$$\text{discriminant} = -32, \quad 2 \text{ imaginary solution}$$

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

$$x = \frac{3 \pm \sqrt{29}}{2}$$

$$x = \frac{4}{3}$$

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. $\dfrac{5}{6x^3} \div \dfrac{10}{6x} = \dfrac{1}{2x^2}$

$$\frac{k+1}{4}$$

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

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

$$\frac{4n^2 + 21n - 30}{5(n+4)}$$

$$\frac{x+30}{(x-5)(x+2)}$$

20. $\dfrac{\dfrac{u^2}{2} + \dfrac{1}{u}}{\dfrac{u-1}{4}} = \dfrac{2(v^3 + 2)}{v(v-1)}$