Student: _____	**Instructor:** Deb Wertz	**Assignment:** Homework #10
Date: _____	**Course:** MAP102 MASTER	

1. If $P(x) = x^2 + x + 3$ and $Q(x) = 6x^2 - 3$, find $P(7)$.

   $P(7) =$ _____
   (Type an integer or a fraction.)

2. If $P(x) = x^2 + x + 6$ and $Q(x) = 4x^2 - 1$, find $Q(-10)$.

   $Q(-10) =$ _____
   (Type an integer or a fraction.)

3. If $P(x) = x^2 + x + 2$ and $Q(x) = 71x^2 - 1$, find $Q\left(\frac{1}{9}\right)$.

   $Q\left(\frac{1}{9}\right) =$ _____
   (Type an integer or a fraction.)

4. An object is dropped from the top of a tower with a height of 1130 feet. Neglecting air resistance, the height of the object at time t seconds is given by the polynomial $-16t^2 + 1130$. Find the height of the object at $t = 8$ seconds.

   The height of the object at 8 seconds is _____ feet.

5. Add.

   $\left(9y^2 + y - 8\right) + \left(6y^2 - y - 5\right)$

   $\left(9y^2 + y - 8\right) + \left(6y^2 - y - 5\right) =$ _____
   (Simplify your answer.)

6. Add.

   $\left(8x^3y - 7xy + 3\right) + \left(7x^3y + 7xy + 3x\right)$

   $\left(8x^3y - 7xy + 3\right) + \left(7x^3y + 7xy + 3x\right) =$ _____ (Simplify your answer.)

7. Subtract.

   $\left(2y^2 - 9y + 4\right) - \left(4y^2 - 9y + 9\right)$

   $\left(2y^2 - 9y + 4\right) - \left(4y^2 - 9y + 9\right) =$ _____ (Simplify your answer. Do not factor.)

8. Perform the indicated operation.

   $(9x^3 + 9x^2 - 10x + 8) - (-11x^3 - 11x^2 - 3x + 3)$

   $(9x^3 + 9x^2 - 10x + 8) - (-11x^3 - 11x^2 - 3x + 3) =$ _____
   (Simplify your answer. Do not factor.)

9. Perform the subtraction and simplify.

$(7x^2 + 3x + 5) - (3x^2 - 5)$

$(7x^2 + 3x + 5) - (3x^2 - 5) =$ _____

10. Perform the subtraction and simplify.

$(14ab - 11a^2b + 2b^2) - (18a^2 - 19a^2b - 2b^2)$

$(14ab - 11a^2b + 2b^2) - (18a^2 - 19a^2b - 2b^2) =$ _____
(Do not factor.)

11. Perform the indicated operations and simplify.

$(8x^2 - 7) + (-4x^2 - 2) - (4x^2 - 9)$

$(8x^2 - 7) + (-4x^2 - 2) - (4x^2 - 9) =$ _____

12. Subtract.

$\left(\frac{3}{4}x^2 - \frac{6}{7}x + \frac{2}{3}\right) - \left(\frac{1}{4}x^2 + \frac{1}{14}x - \frac{1}{6}\right)$

$\left(\frac{3}{4}x^2 - \frac{6}{7}x + \frac{2}{3}\right) - \left(\frac{1}{4}x^2 + \frac{1}{14}x - \frac{1}{6}\right) =$ _____
(Use integers or fractions for any numbers in the expression. Simplify your answer. Do not factor.)

13. For the following pair of functions, find $P(x) + Q(x)$.

$P(x) = 3x + 5$ and $Q(x) = 6x^2 - 7x + 2$

$P(x) + Q(x) =$ _____ (Simplify your answer. Do not factor.)

14. For the following polynomial, find $P(a)$, $P(-x)$ and $P(x + h)$.

$P(x) = 3x - 7$

$P(a) =$ _____ (Simplify your answer. Do not factor.)

$P(-x) =$ _____ (Simplify your answer. Do not factor.)

$P(x + h) =$ _____ (Simplify your answer. Do not factor.)

15. For the following polynomial, find $P(a)$, $P(-x)$ and $P(x + h)$.

$P(x) = 6x - 7$

$P(a) =$ _____ (Simplify your answer. Do not factor.)

$P(-x) =$ _____ (Simplify your answer. Do not factor.)

$P(x + h) =$ _____ (Simplify your answer. Do not factor.)

16. Complete the expression.

$(x + 18)^2 =$ _____

Choose the correct answer below.

- **A.** $(x + 18)^2 = x^2 - 324$
- **B.** $(x + 18)^2 = x^2 + 18x + 324$
- **C.** $(x + 18)^2 = x^2 + 324$
- **D.** $(x + 18)^2 = x^2 + 36x + 324$

17. Choose the product of $(x + 3)(x - 3)$ from the following list.

$x^2 + 3x - 9$ $x^2 + 6x - 9$
$x^2 + 9$ $x^2 - 9$

Choose the correct answer below.

- **A.** $x^2 - 9$
- **B.** $x^2 + 9$
- **C.** $x^2 + 3x - 9$
- **D.** $x^2 + 6x - 9$

18. Select the correct choice that completes the sentence below.

The product of $(3x - 1)(4x^2 - 2x + 1)$ is a polynomial of degree (1) _____

(1)
- $12x^3$.
- 12.
- 3.
- 2.

19. Fill in the blank.

If $f(x) = x^2 + 9$, then $f(a + 4) =$ ____.

$f(a + 4) =$ (1) _____

(1)
- $a + 4$
- $(a + 4)^2$
- $(a + 4)^2 + (a + 4)$
- $(a + 4)^2 + 9$

20. Select the correct choice that completes the sentence below.

$[x + (2y + 1)]^2 = (1)$ _____

(1)
- $[x + (2y + 1)]\,[x - (2y + 1)]$
- $[x + (2y + 1)]\,[x + (2y + 1)]$
- $[x + (2y + 1)]\,[x + (2y - 1)]$

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21. Multiply.

$-6xy(3x + y)$

$-6xy(3x + y) =$ _____ (Simplify your answer.)

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22. Multiply.

$3ab\left(xa^2 + ya^7 + 5\right)$

$3ab\left(xa^2 + ya^7 + 5\right) =$ _____

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23. Multiply.

$(a - 3)(2a + 5)$

$(a - 3)(2a + 5) =$ _____ (Simplify your answer.)

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24. Multiply.

$(-6x + 2)\left(x^3 - x - 5\right)$

$(-6x + 2)\left(x^3 - x - 5\right) =$ _____ (Simplify your answer.)

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25. Multiply.

$(x + 3)^2$

$(x + 3)^2 =$ _____ (Simplify your answer.)

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26. Multiply using the rule for the product of the sum and difference of two terms.

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

$(6x + 7)(6x - 7) =$ _____

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27. Multiply using special product methods.

$(8x - y)^2$

$(8x - y)^2 =$ _____
(Simplify your answer.)

28. Use special products to multiply.

$\left(3x+\frac{1}{2}\right)\left(3x-\frac{1}{2}\right)$

$\left(3x+\frac{1}{2}\right)\left(3x-\frac{1}{2}\right) =$ _____

(Simplify your answer. Use integers or fractions for any numbers in the expression.)

29. Multiply.

$\left(5x^3+3\right)\left(7x^2+3x+5\right)$

$\left(5x^3+3\right)\left(7x^2+3x+5\right) =$ _____

(Simplify your answer.)

30. If $f(x)=x^2-15x$, find the following.

$f(a+h)$

$f(a+h) =$ _____ (Simplify your answer.)

31. If $f(x)=x^2-5x$, find $f(b-9)$.

$f(b-9) =$ _____

32. Find the greatest common factor for the list of terms.
x^3, x^6, x^8

The greatest common factor is _____.

33. Find the greatest common factor for the list of monomials.

$x^5y^5z^4, y^2z^4, xy^2z^3$

The GCF is _____.

(Simplify your answer.)

34. Find the greatest common factor for the list of monomials.

$42x^4y^3z, 21xy^3, 84x^3y^4$

The greatest common factor is _____.

35. Factor out the GCF in the polynomial.

$12x-18$

Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

- **A.** $12x-18 =$ _____
- **B.** The polynomial has no common factor other than 1.

36. Factor out the greatest common factor from the following polynomial.

$5y^2 - 30xy^3$

Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

- **A.** $5y^2 - 30xy^3 =$ _____ (Type your answer in factored form.)
- **B.** The polynomial has no common factor other than 1.

37. The amount E of voltage in an electrical circuit is given by the formula $IR_1 + IR_2 = E$. Write an equivalent equation by factoring the expression $IR_1 + IR_2$.

The equivalent equation is _____ $= E$.

1. 59

2. 399

3. $-\frac{10}{81}$

4. 106

5. $15y^2 - 13$

6. $15x^3y + 3x + 3$

7. $-2y^2 - 5$

8. $20x^3 + 20x^2 - 7x + 5$

9. $4x^2 + 3x + 10$

10. $14ab + 8a^2b - 18a^2 + 4b^2$

11. 0

12. $\frac{1}{2}x^2 - \frac{13}{14}x + \frac{5}{6}$

13. $6x^2 - 4x + 7$

14. $3a - 7$

$-3x - 7$

$3x + 3h - 7$

15. $6a - 7$

$-6x - 7$

$6x + 6h - 7$

16. D. $(x + 18)^2 = x^2 + 36x + 324$

17. A. $x^2 - 9$

18. (1) 3.

19. (1) $(a + 4)^2 + 9$

20. (1) $[x + (2y + 1)]\ [x + (2y + 1)]$

21. $-18x^2y - 6xy^2$

22. $3xa^3b + 3ya^8b + 15ab$

23. $2a^2 - 1a - 15$

24. $-6x^4 + 2x^3 + 6x^2 + 28x - 10$

25. $x^2 + 6x + 9$

26. $36x^2 - 49$

27. $64x^2 - 16xy + y^2$

28. $9x^2 - \frac{1}{4}$

29. $35x^5 + 15x^4 + 25x^3 + 21x^2 + 9x + 15$

30. $a^2 + 2ah + h^2 - 15a - 15h$

31. $b^2 - 23b + 126$

32. x^3

33. $y^2 \cdot z^3$

34. $21xy^3$

35. A. $12x - 18 =$ **$6(2x - 3)$**

36. A. $5y^2 - 30xy^3 =$ **$5y^2(1 - 6xy)$** (Type your answer in factored form.)

37. $I\left(R_1 + R_2\right)$