MTH 05, Test 3, V. 4, 11/20/18 Luis Fernández

NAME:_____

There are nineteen questions. Multiple choice questions are 5 points each. Free response questions are 8 points each. For multiple-choice questions, circle your answer. For free-response questions, SHOW ALL WORK to receive full credit.

1. Divide and write in scientific notation:

$$\frac{3.5 \times 10^7}{5 \times 10^{-5}}$$

(a) 0.7×10^{12}

(b) 7×10^{11}

(c) 7×10^{12}

(d) 7×10^{10}

2. Which of the following is a factor of the polynomial $x^2 - 17x + 30$?

(a) $(x - 17)$

(b) $(x + 2)$

(c) $(x - 15)$

(d) $(x + 15)$

3. Simplify. $\dfrac{45x^7 - 27x^3 + 36x^5}{-9x^3}$

(a) $36x^4 - 36 + 27x^2$

(b) $-5x^{21} + 3x^9 - 4x^{15}$

(c) $-5x^4 + 3 - 4x^2$

(d) $-5x^4 + 4x^2$

4. Factor completely: $4x^2 + 11x - 3$

(a) $(x + 1)(4x - 3)$

(b) $(2x + 1)(2x - 1)$

(c) Cannot be factored.

(d) $(x + 3)(4x - 1)$

5. Factor: $4x^2 - 25$.

(a) Cannot be factored.

(b) $2(x-5)(x+5)$

(c) $(2x-5)^2$

(d) $(2x+5)(2x-5)$

6. Write with only positive exponents:

$$\left(\frac{12x^2y^{-3}}{4x^{-5}}\right)^{-2}$$

(a) $\dfrac{9y^6}{x^9}$

(b) $-9y^6x^{-6}$

(c) $-\dfrac{6x^6}{y^6}$

(d) $\dfrac{y^6}{9x^{14}}$

7. Which of the following is a factor of $4x^4 - 100x^2$?

(a) $x^2 + 5$

(b) $x + 5$

(c) 10

(d) $4x - 10$

8. Multiply: $(3x-2)(x^2+4x-5)$

(a) $12x^6 - 12x^4 + 10$

(b) $3x^3 - 14x^2 - 23x + 10$

(c) $3x^3 + 10x^2 + 7x + 10$

(d) $3x^3 + 10x^2 - 23x + 10$

9. Write using only positive exponents:
$(-x^3y^{-6}z^5)(8x^{-3}yz^4)$

(a) $-\dfrac{8z^9}{y^5}$

(b) $\dfrac{z^9}{8y^5}$

(c) $\dfrac{24x^6z^9}{y^5}$

(d) $-\dfrac{8z^{20}}{x^9y^6}$

10. Simplify $(4x^2+5x-4)-(-6x^2-5x+7)$.

(a) $10x^2+10x-11$

(b) $10x^2+10x-3$

(c) $-24x^4-25x^2-28$

(d) $-2x^2+10x+11$

11. Simplify: $\dfrac{x^4x^{-7}}{x^5}$.

(a) $\dfrac{1}{x^8}$

(b) $\dfrac{1}{x^5}$

(c) x^8

(d) x^2

12. Which of the following is a factor of the polynomial $2cx+5cy-6dx-15dy$?

(a) $x-3y$

(b) $c+3d$

(c) Cannot be factored

(d) $2x+5y$

13. Expand: $(a+b)^2$

(a) $(a+b)(a-b)$

(b) a^2-b^2

(c) a^2+b^2

(d) $a^2+2ab+b^2$

14. Give the product in scientific notation.

$$(6\times 10^3)(7\times 10^7)$$

(a) 4.2×10^9

(b) 4.2×10^{10}

(c) 42×10^{10}

(d) 4.2×10^{11}

Free response questions start here. SHOW ALL WORK!!!

15. Multiply: $(7x-5)(7x+5)$

16. Factor completely: $3x^3-15x^2+18x$.

17. Multiply: $(x^2 + 3x - 6)(x - 7)$

18. Factor completely: $x^6y^3 - 16x^2y^7$

19. Divide: $\dfrac{9x^3 - 6x^2}{3x^2}$.