

M007 - Elementary Algebra
Practice Exam II

1. Simplify leaving only positive exponents. (*Sections 4.1 and 4.9*)

a) $(a^3b)(ab)^4$

b) $\left(\frac{5a^7}{2ab^5}\right)^3$

c) $\frac{(a^2b^{-3})^{-4}}{(a^{-3}b^5)^2}$

d) $3^{-1} + 2^{-2}$

2. (*Section 4.3*) $(9x^8 - 7x^4 + 2x^2 + 5) + (8x^7 + 4x^4 - 2x)$

3. (*Section 4.3*) $\left(\frac{5}{8}x^3 - \frac{1}{4}x - \frac{1}{3}\right) - \left(-\frac{1}{8}x^3 + \frac{1}{4}x - \frac{1}{3}\right)$

4. Multiply the following polynomials and simplify. (*Sections 4.4 and 4.5*)

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

b) $3x(x^2 + 2x - 1)$

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

d) $(x-2)^2 + (5-2x)(1+x)$

e) $(x-y)(2x+xy-5y)$

5. Write the numbers in scientific notation and perform the operation.

Leave your answer in scientific notation. (*Section 4.8*)

a) $0.0000006 \div 50,000$

6. Perform the division. (*Sections 4.7*)

a) $(3x^4 + 5x^3 - 2x^2 + x - 6) \div (x + 4)$

7. Perform the indicated operations. Express the answer without exponents. (*Section 4.8*)

a) $(3.2 \times 10^7)(4.6 \times 10^{-12})$

b) $(9.6 \times 10^4)(7.2 \times 10^5)$

8. Factor Completely. If prime, state this. (*Sections 5.1-5.4*)

a) $16x^2 - 25$

b) $3x^2 - 6x + 5xy - 10y$

c) $9x^2 + 3x - 12$

d) $4x^2 + 9$

e) $x^2 - 5x - 14$

f) $4x^2 + 20x + 25$

9. Solve by factoring and using principle of zero products. (*Sections 5.6-5.7*)

a) $2y^2 + 12y + 10 = 0$

b) $-15 = x^2 + 8x$

c) $x^2 + 3x = 0$

d) $18x^2 - 32 = 0$

e) $y^4 - 13y^2 + 36 = 0$

f) $6x^2 + 9x - 27 = 0$

10. A right triangle has a hypotenuse of 26m and one leg is 10m long. How long is the other leg?

