

M007 - Elementary Algebra
Practice Exam I

1. Evaluate the following for the given values of the variables $x = -3$ and $y = 2$. (*Section 1.1*)

a) $2x^2 - 3y + 4xy$

b) $\frac{3y + x}{x + 5}$

2. Translate the verbal description into a numerical expression. (*Section 1.1*)

a) Multiply the sum of -7 and 3 by -5.

3. Translate the given information into an equation. (*Section 1.1*)

a) The sum of a number and 3 times the number is 2 less than twice the number.

4. Factor:

a) $6x + 3y - 12$

b) $7 + 21x - 14y$

5. How many square feet of carpet is needed for a room that is 15 feet wide and 17 feet long? (*Section 1.1*)

6. Name the property illustrated. (*Sections 1.2 and 1.5*)

a) $3 + (c + 5) = (3 + c) + 5$

a) _____

b) $4 \cdot (3+x) = (3+x) \cdot 4$

b) _____

c) $7(c+d) = 7c + 7d$

c) _____

7. Multiply. (Sections 1.2, 1.4, and 1.7)

a) $4(3x+y-5)$

b) $(-7)(2x-4)$

8. Evaluate each of the following. (Sections 1.3, 1.4, 1.6, and 1.7)

a) $-9 + \left(-\frac{4}{5}\right)$

c) $|-3| - |-8|$

b) $10 - (-11) - 5 + (-7) - 9$

d) $(-1)(-2)(-1)(-3)(-3)$

9. Write a true sentence using either $>$, $<$ or $=$. (Section 1.4)

a) 5 _____ $|-5|$

c) 0 _____ -5

b) $-\frac{1}{2}$ _____ $-\frac{2}{5}$

d) 5.2 _____ -5.2

10. In the state of California, the highest elevation is Mount Whitney, with an altitude of 14,495 feet. The lowest altitude is Death Valley, at 280 feet below sea level. What is the difference between the two altitudes? (Section 1.6)

11. Determine if $x = -1$ is a solution of the equation $x = 2 - 3x$. (Section 2.1)

12. Answer the following questions about the given expression: $14x^3 - 3x^2 + 2x^2 - 7x^3 + x$
(Sections 1.8 and 4.2)

a) How many terms are there in the expression?

b) Name the terms that are like terms.

c) Simplify the expression by combining like terms.

13. Simplify the following expression by combining like terms. (*Section 1.8*)

a) $5(2t+1) - 2(t-4)$

14. Simplify the following expression by combining like terms. (*Section 1.8*)

a) $7 - 3[4 - (x + 2)]$

15. Describe the difference between the following expressions. Evaluate each if possible. (*Section 1.7*)

a) $\frac{-3}{0}$ and $\frac{0}{-3}$

16. Perform the indicated operations using the *Order of Operations*. (*Sections 1.8 and 10.1*)

a) $5 + 7 \cdot 2 - 6 \div 3 + 8$

b) $2^3 - 10[4 - (-2 + 18)3]$

c) $\frac{5 - (5^2 - 4(2)(1))}{2(2)}$

d) $18 - (7 + 2) - 8 \div 2$

17. Solve and check. (*Sections 2.1 and 2.2*)

a) $3x + 6 = 30$

b) $8y - 5y = 15$

c) $10.2y - 7.3y = -58$

d) $4 + 3x - 6 = 3x + 2 - x$

e) $-\frac{3}{5}r = -\frac{9}{10}$

f) $4y - 4 + y = 6y + 20 - 4y$

18. Solve for the indicated variable. (*Section 2.3*)

a) $A = \frac{1}{2}(a + b)h$ Solve for b.

b) $\frac{v}{wh} = L$ Solve for w.

19. *FBI Recruiting (Section 2.4)*

The FBI annually receives 16,000 applications for agents. It accepts 600 of these applicants. What percent does it accept?

20. *Running (Section 2.5)*

Jenna is twice as far from the finish line as she is from the start of a 10-km race. How far has she run?

21. Solve and graph the inequality. (*Section 2.6*)

a) $8(2t + 1) > 4(7t + 7)$

b) $3(x + 4) \leq x - 20$

22. *Quiz Average (Section 2.7)*

Rod's quiz grades are 73, 75, 89, and 91. What scores on a fifth quiz will make his average quiz grade at least 85?