Unit 1 Test – College Algebra Prep **Mr. Wenneborg**

Finance Math 2018-19 **Do NOT write on this test!**

Simplify:

1) $(3x^2 – 5x – 6) - (4x + 5x^2 + 4)$

a. $-1x^2 – 10x - 2$ b. $-2x^2 + x – 24$

c. $8x^2 – 9x - 2$ d. $-2x^2 – 9x - 10$

2) $(3x^0y^5z^6)(-2xy^3z^6)$

a. $6y^{15}z^{36}$ b. $5xy^8z^{12}$

c. $-6xy^{15}z^{12}$ d. $-6xy^8z^{12}$

3) $(2a – 5)(3a + 8)$

a. $5a^2 – a – 40$ b. $6a^2 + a – 40$

c. $5a^2 – a + 40$ d. $6a^2 – a - 40$

4) Solve the following system of equation for x.

$x + 7y = 12$
$3x - 5y = 10$

a. $x = 5$ b. $x = -5$

c. $x = 1$ d. $x = -1$

5) Evaluate: $64^{4/3}$

a. 80 b. 256

c. 32 d. 512

6) Evaluate: $16^{5/4}$

a. 80 b. 256

c. 32 d. 512

7) Evaluate: $27^{-4/3}$

a. 1/81 b. 1/243

c. 1/36 d. -81

8) Find a factor of $10x^2 - 29x - 21$.

a. (10x + 7) b. (5x + 3) c. (5x – 3)

d. (2x + 3) e. (5x – 2)

9) Multiply. $\frac{15x^3y^2}{8xy} \cdot \frac{24x^2}{10xy^5}$

a) $\frac{9x^4}{2y^4}$ b) $\frac{9x^3}{2y^4}$ c) $\frac{9x^3}{2y^3}$ d) $\frac{9x^3}{4y^4}$ e) $\frac{9x}{4y^4}$

Use $f(x) = 3x^2 - 2x + 5$ and $g(x) = 3x - 1$ for problems 10-12.

10) Find f(2) - g(4).

a. 45 b. 1

c. 13 d. 2

11) Find g(f(x)). *Hint: plug f(x) in to each x value of g(x).*

a. $9x^2 - 6x + 14$ b. $3x^2 - 2x + 5$

c. $9x^2 - 2x + 14$ d. $3x^2 - 6x + 16$

12) Find g(f(-3))

a. 77 b. -49

c. 13 d. 113

13) Which of the following is the equation for the axis of symmetry for $y = 2x^2 - 6x + 5$?

a. $x = -6$

b. $x = -3$

c. $x = -3/2$

d. $x = 3/2$

14) What is the vertex of $y = -2x^2 - 4x + 5$?

a. (-1,7)

b. (1,-7)

c. (-1, 5)

d. (1, -5)

15) Solve $2x^2 - 7x - 15 = 0$.

a. $x = 3, 2$

b. $x = -3, 5$

c. $x = -3/2, 5$

d. $x = 3/2, -5$

16) Write in lowest terms: $\dfrac{x^2+6x-16}{x^2+5x-24}$

a. $\dfrac{x-2}{x-3}$

b. $\dfrac{2}{3}$

c. $\dfrac{6x-16}{5x-24}$

d. $\dfrac{6x-2}{5x-3}$

17) Which of the given points is a solution to this system of linear inequalities?

$3x + 4y < 8$
$y < ½x + 6$
$y > -4$

a. (-8,2)

b. (2,-7)

c. (-1, 2)

d. (2, -5)

18) Find the solution(s) of $y = 4x^2 + 25x - 21$

a. x = 3/4, -7

b. x = −3/4 , -7

c. x = -3/2, 5

d. x = 3/4, -5

19) Simplify: $\left(3^{\frac{2}{3}} \cdot 16^{\frac{1}{6}}\right)^3$

a. 48

b. 8

c. 12

d. 36

20) Simplify: $\sqrt[3]{125x^6}$

a. 5^3x^3

b. $5x^3$

c. $5x^2$

d. $25x^2$

21) Simplify: $\left(64^{\frac{2}{3}}\right)$

a. 16

b. 4

c. +/-8

d. 48

22) Write $4^3 = 64$ in logarithmic form.

a. $\log_4 3 = 64$

b. $\log_3 4 = 64$

c. $\log_4 64 = 3$

d. $\log_{64} 4 = 3$

23) Write $\log_9 729 = 3$ in exponential form.

a. $3^9 = 729$

b. $9^3 = 729$

c. $729^{1/3} = 9$

d. $729^{1/9} = 3$

24) Solve: $\log_4 1024$

a. 3

b. 5

c. 7

d. 9

25) Solve: $\sqrt[3]{2x} + 5 = 9$

a. x = 256

b. x = 64

c. x = 2

d. x = 32