Hello student! Use this practice test to prepare for your math placement test: **WAMAP Test 3.** Answers are included at the end of document, if you are attempting to place into Math 141 and get 35%+ correct we encourage you to **take Test 3 with Highline College.** If you are attempting to place into Math 142, or move onto Test 4, aim for 75% correct.

Practice - Prep for Placement Test 3

1. Factor $x^2 - 5x - 6$

2. Factor $9x^2 - 49$

3. Factor $3x^2 + 10x + 8$

4. Factor each. If it is prime type "DNE" for "Does Not Exist"

 $25x^2 - 64y^2 =$ _____

 $25x^2 + 64x^2 =$ _____

5. Factor $5a^2 + 19a + 12$

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

A. _The expression $5a^2 + 19a + 12$ factors to _____

B. _____The expression is not factorable.

6. Factor $25w^2 + 81$

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

A. _The expression $25w^2 + 81$ factors to ______ . B. _The expression does not factor to two real binomials.

7. Solve.

 $b^2 + 8b = -7$

b = _____

8. Solve:

(y+9)(y+10) = 20

y = _____

9. Use the quadratic formula to solve the equation.

 $4x^2 - 4x - 9 = 0$

x = _____ Do not round.

10. Solve the equation $\frac{5}{x+1} - \frac{2}{x} = -1$.

x = _____ (Enter largest value of x here.)

x = _____ (Enter smaller value of x here.)

Entry Tips:

Type an exact answer, use fractions, integers and/or radicals as needed, NOT decimal approximations.

11. Solve $24r^2 = 7r$

r = _____

(Type an exact answer. Use a comma to separate answers as needed. If there are two solutions list them from smallest to largest.)

12. Simplify. $(3w + 2)^2$

13. Simplify:
$$\left(\frac{3a^2}{b^2c^3}\right)^4$$

14. Simplify the expression completely:

$$\left(\frac{x^5}{y^7}\right)^3 = \underline{\qquad}$$

15. Simplify: $\frac{4c^{8}}{16c^{2}}$ A. _ 20 c^{6} B. _ $\frac{12}{c^{6}}$ C. _ 64 c^{10} D. _ $\frac{c^{6}}{4}$

16. Use properties of exponents to simplify the expression $\frac{y^{13}}{y^5}$. Express answer with positive exponents.

Select the correct choice below and fill in the associated answer box to complete your answer.

A. _A. y^m where m = _____ B. _B. $\frac{1}{y^m}$ where m = _____

17. Add and simplify: $\frac{3}{x+6} + \frac{x+42}{x^2-36}$

18. Add. For answer, simplify numerator, but write denominator in factored form.

 $\frac{13x}{x^2 - 10x + 25} + \frac{3}{x - 5} = \underline{\qquad}$

19. Simplify.

 $\frac{b^2 + 2b - 48}{b^2 - 64} = \underline{\qquad}$

20. Simplify.

 $\frac{3y-12}{16-4y} =$ _____

21. Consider the rational function $f(x) = \frac{2x+19}{x^2-11x+24}$ What are the **equations** of the vertical asymptote?

_____ (Enter your smallest *x* equation FIRST.) _____ Enter your largest *x* equation SECOND.)

22. Simplify.

 $4\sqrt{54y} + 2\sqrt{80y} = _$

23. Simplify $\sqrt[5]{x^6y^7}$.

24. Solve. $\log_5(c) = 8$

c = _____

25. Solve the logarithmic equation. Give the exact answer.

$$\log_3(7x+3) = 2$$

The solution is x = ______ (Give an exact answer, do not use decimals. Click in the answer box for more formatting options.)

26. Find the solution of the exponential equation. $9e^x = 3$

x = _____ You may enter the exact solution or round to 4 decimal places.

27. Solve for *x* :

 $10^{4x-6} = 9^{8x-9}$

 $x = _$ _____.

28. The graph below is a transformed exponential, which can be written in the form $f(x) = ab^x + c$, where *c* is the horizontal asymptote.



What is the horizontal asymptote?

c = _____

If we then plug the point (0, -3) in for x and f(x), we can find that

a = _____

Then plugging in the point (-1, -1) for x and f(x), we can find that

b = _____

29. Use the properites of logarithms to expand the following expression into a string of logarithms having no product, quotient, or power. When typing log(x) you need to use parenthesis and it should be typed as **log(x)**. No decimals allowed.

$$\log\left(\frac{x^4y^2}{z}\right)$$

30. If
$$\log_3(x^2 \sqrt[3]{y^3}) = A \log_3 x + B \log_3 y$$
 then

A = _____

B = _____

31. Determine whether the equation is true or false. Assume all variables represent positive real numbers.

 $\ln(x+7) = \ln(x) + (7)$

Choose the correct answer below.

A. _____The equation is true.

B. _____The equation is false.

32. Identify the domain of the following functions:

a) $f(x) = \log(-6x - 8)$ Domain: ______ b) $f(x) = \ln(5x - 9)$ Domain: _____ c) $f(x) = \log_8(3x + 8)$ Domain: _____

33. Determine the domain of the function $h(x) = \log_3(x-5)$.

What is the domain of h(x)?

This is standard American interval notation:

Inequality	Interval Notation
<i>x</i> < -5	(−∞,−5)
$x \leq -5$	(−∞,−5]
x > -5	(−5,∞)
$x \ge -5$	[−5,∞)
$-5 < x \le 0$	(-5,0]

⁽Type your answer in interval notation. Two lowercase "oo" will make the infinity symbol " ∞ ".)

34. Graph the Exponential Function $y = \log_3(x)$ by plotting the x-intercept and one other point.







B. What is the range of $g(x) = 5^{x+5}$?_____

(Type your answer in interval notation. Two lowercase "oo" will make the infinity symbol " ∞ ".)

This is standard American interval notation:

Interval Notation
(−∞,−5)
(−∞,−5]
(−5,∞)
[−5,∞)
(-5,0]

36. Write the domain of the function in interval notation. (Hint: You may want to consider the graph of the function to aid you.)

$$f(x) = \sqrt{x - 8}$$

What is the domain of f(x)? _____ (in interval notation)

This is standard American interval notation:

Inequality	Interval Notation
x < -5	(−∞,−5)
$x \leq -5$	(−∞,−5]
x > -5	(−5,∞)
$x \ge -5$	[−5,∞)
$-5 < x \le 0$	(-5,0]

37. Given the function

$$f(x) = \begin{cases} 8x - 10 & x < 0\\ 8x - 20 & x \ge 0 \end{cases}$$

Calculate the following values:

 $f(-1) = _$ $f(0) = _$ $f(2) = _$

38. Rewrite $(x - 2)^2$ as an equivalent expression without parentheses.

39. Perform the indicated operation.

 $\frac{11}{x-2} - \frac{6}{x} =$ _____

(For answer, simplify numerator, but write denominator in factored form.)

40. Given the function f(x) = 4x + 2 evaluate f(5x + 5).

f(5x + 5) = _____ (Simplify your answer.)

Key - Form 1

- 1. (x+1)(x-6)
- 2. $(3 \cdot x 7) \cdot (3 \cdot x + 7)$
- 3. (x+2)(3x+4)
- 4. $(5x + 8y)(5x 8y) \sim DNE$
- 5. The expression $5a^2 + 19a + 12$ factors to [AB1] ~ (5a + 4)(a + 3)
- 6. The expression does not factor to two real binomials. \sim
- 7. -1, -7
- 8. -5, -14

9
$$\frac{1+\sqrt{10}}{1-\sqrt{10}}$$

- 9. $\frac{1+\sqrt{10}}{2}, \frac{1-\sqrt{10}}{2}$ 10. 0.73205080756888 ~ -2.7320508075689
- 11. $0, \frac{7}{24}$
- 12. $9w^2 + 12w + 4$
- 13. $\frac{81a^8}{b^8c^{12}}$
- 14. $\frac{x^{15}}{y^{21}}$
- 15. $\frac{c^6}{4}$
- 16. A. y^m where $m = [AB1] \sim 8 \sim$
- 17. $\frac{4}{x-6}$ 18. $\frac{16x-15}{(x-5)^2}$

- 19. $\frac{b-6}{b-8}$
- 20. $-\frac{3}{4}$
- 21. $x = 3 \sim x = 8$
- 22. $12\sqrt{6y} + 8\sqrt{5y}$



These practice packets should N**OT** be taken more than once. Instead, use them to target specific areas that need further work and access more practice questions online with **WAMAP**