1) Solve. \(3x^2 - 18x + 24 = 0\)

2) Determine whether the graphs of the equations are parallel lines, perpendicular lines, or neither.
   \[y = 4x - 4\]
   \[16x + 4y = 6\]

3) Simplify. \([4(x - 4) - 3] + [8(x - 1) + 8]\)

4) Multiply. \((5a + 12c)(5a - 12c)\)

5) Factor completely. \(x^2 + 3xy - 10y^2\)

6) Solve. \(\frac{x}{3} - \frac{x}{8} = 6\)

7) Write an equation in slope-intercept form of a line through the given point \((0, 2)\); and with the given slope of \(m = \frac{6}{5}\).

8) Factor completely. \(4x^2 - 4x - 24\)

9) Graph. \(x + y = -4\)

10) Identify the degree of each term and the degree of the polynomial.
    \(3x - 2x^2 + 7 - 4x^3\)

11) Multiply. \(\left(\frac{1}{7}\right) \left(\frac{1}{6}\right) \left(\frac{-4}{9}\right)\)
12) Simplify. \( 31 + (-85) + 122 - (-18) - 98 \)

13) Wayne has $31.26 in his wallet. Janice has a debt note for $27.63 in her wallet. Find the difference between these amounts.

14) List all the elements of B that belongs to the set of Rational numbers.
   \( B = \{16, \sqrt{8}, -16, 0, \frac{0}{8}, \sqrt{25}, 0.7\} \)

15) Multiply. \( (3p - 1)(9p^2 + 3p + 1) \)

16) Factor completely. \( 9x^2 + 64 \)

17) Chuck and Dana agree to meet in Chicago for the weekend. Chuck travels 300 miles in the same time that Dana travels 270 miles. If Chuck’s rate of travel is 5 mph more than Dana’s, and they travel the same length of time, at what speed does Chuck travel?

18) Solve. \( 9x - (6x - 1) = 2 \)

19) Frank can type a report in 3 hours and James takes 7 hours. How long will it take the two of them typing together?

20) Subtract. \( -\frac{4}{5} - \left(-\frac{7}{10}\right) \)

21) Simplify. \( 3 + (-19)(-10) + (-15) \)

22) Solve the inequality and write your answer in set–builder notation. \( 7a - 11 \geq 8a - 19 \)

23) Describe the graph using interval notation.
24) The second angle of a triangle is 3 times as large as the first. The third angle is 65° more than the first. Find the measure of the smallest angle.

25) The perimeter of a rectangle is 28 cm. One side is 8 cm longer than the other side. Find the lengths of the sides.

26) Write an equation for the graph.

27) Find the x-intercept and the y-intercept for the equation 

\[-3x + y = 9.\]

28) Evaluate \[2x^3 + 2x^2 - 25\] for \[x = -2\]

29) Simplify. \[\frac{1}{a} + 1 \quad \frac{1}{a} - 1\]

30) Multiply and simplify. (Give your answer with positive exponents.) \[x \cdot x^{-8}\]

31) Find the x-intercepts for this equation. \[y = x^2 - x - 42\]

32) Simplify. \[\frac{y^2 + 8y + 15}{y^2 + 13y + 40}\]
33) Divide and simplify. \( \frac{p^2}{p^{-7}} \)

34) Simplify. Write your answer with positive exponents. \((a^{-3}b^{-2})(a^{-2}b^{-5})\)

35) Multiply. \((-6x^4)(8x^3)(-2x^6)\)

36) Add. Simplify, if possible. \( \frac{8}{7x - 9} + \frac{2}{9 - 7x} \)

37) Divide and, if possible, simplify. \( \frac{8p - 8}{p} \div \frac{10p - 10}{8p^2} \)

38) Find the slope of the line going through the pair of points \((3, -7), (6, 5)\).

39) Write an equation of the line that is perpendicular to the graph of \(6x + y = -7\); and has a \(y\)-intercept \((0, 7)\).

40) Subtract. \((8x^7 + 3x^9 + 9 - 7x^8) - (-2 - 5x^8 + 5x^9 + 6x^7)\)

41) Find the LCM. \(r^2 + 10r + 25, \quad r^2 + 5r\)

42) Solve. \(\frac{x}{-2} = -5\)

43) Find the slope and the \(y\)-intercept of the given line. \(-2x + 8y = 8\)

44) Multiply. \((x^2 - 8)^2\)

45) Find the degree of the polynomial. \(xyz^5 + x^5y^4 + xz^4\)
46) Factor completely. \(x^4 - 81\)  

47) Subtract. Simplify, if possible. \(\frac{5x}{x^2 - 4} - \frac{x}{x - 2}\)  

48) Find all numbers for which the rational expression is not defined. \(\frac{d - 6}{8 - d}\)  

49) Solve the formula for \(y\).  
\[x = \frac{w + y + z}{5}\]  

50) Simplify. Write your answer with only positive exponents. \(\left(\frac{-3w^3}{x}\right)^2\)  

51) Dr. Taylor can see 12 patients in 3 hours. At this rate, how long would it take him to see 84 patients?  

52) The height of a triangle is 4 cm more than the length of the base. If the area of the triangle is 126 cm\(^2\), find the height and length of the base.  

53) Factor completely. \(125s^3 + 1\)  

54) Factor completely. \(6x^2 + 8x - 9x - 12\)  

55) Express the number in standard notation. \(4.56 \times 10^{-4}\)  

56) Divide. Write your answer in scientific notation. \(\frac{15 \times 10^7}{3 \times 10^5}\)  

57) Divide. \(\frac{x^2 + 13x + 32}{x + 9}\)
58) Subtract. Simplify, if possible. \(\frac{6}{x - 5} - \frac{8}{5 - x}\)  
58) ____________

59) Subtract. Simplify, if possible. \(\frac{x}{x^2 - 16} - \frac{4}{x^2 + 5x + 4}\)  
59) ____________

Suppose the triangles shown are similar, with angle A = angle D, angle B = angle E, and angle C = angle F. Answer the question.

60) ____________

![Triangles Diagram]

What is the value of \(x\)?

61) Solve the equation. \(\frac{4}{x - 3} + \frac{9}{x} = \frac{-27}{x^2 - 3x}\)  
61) ____________

62) Solve the equation. \(\frac{3}{3x} + \frac{1}{2x} = -\frac{1}{6}\)  
62) ____________

63) A deep sea diving bell is being lowered at a constant rate. After 8 minutes, the bell is at a depth of 400 ft. After 35 minutes the bell is at a depth of 1900 ft. What is the average rate of lowering per minute? (Round your answer to the nearest tenth, if necessary.)  
63) ____________

64) Multiply and simplify, if possible. \(\frac{2}{p} \cdot \frac{8p^4}{7p}\)  
64) ____________

65) Perform the indicated operations. Simplify, if possible.
\[\frac{2ab}{a^2 - b^2} - \frac{b}{a - b} + 3\]  
65) ____________

66) A 10-ft ladder is leaning against a building. If the bottom of the ladder is 6 ft from the base of the building, how high does the ladder reach?  
66) ____________
1) 2, 4
2) Neither
3) 12x – 19
4) 25 a^2 – 144 c^2
5) (x + 5y)(x – 2y)
6) \(\frac{144}{5}\)
7) \(y = \frac{6}{5}x + 2\)
8) 4(x + 2)(x – 3)
9)

10) 1, 2, 0, 3; 3
11) \(\frac{2}{189}\)
12) -12
13) $58.89
14) 16, -16, 0, \frac{0}{8}, \sqrt{25}, 0.7
15) 27p^3 – 1
16) Prime
17) 50 mph
18) \(\frac{1}{3}\)
19) \(\frac{21}{10}\) hr
20) -\(\frac{1}{10}\)
21) 178
22) [a | a ≤ 8]
23) [x | x < 5], (−∞, 5)
24) 23°
25) 3 cm, 11 cm
26) y = 4
27) (-3, 0), (0, 9)
28) -33
Answer Key
Testname: WEBPAGE MATH 00100 FINAL EXAM PRACTICE TEST (REVISED)

29) \( \frac{1 + a}{1 - a} \)

30) \( \frac{1}{x^7} \)

31) \((-6, 0), (7, 0)\)

32) \( \frac{y + 3}{y + 8} \)

33) \( p^9 \)

34) \( \frac{1}{a^5b^7} \)

35) \( 96x^{13} \)

36) \( \frac{6}{7x^2 - 9} \)

37) \( \frac{32p^5}{5} \)

38) 4

39) \( y = \frac{1}{6}x + 7 \)

40) \(-2x^9 - 2x^8 + 2x^7 + 11 \)

41) \( r(r + 5)^2 \)

42) 10

43) Slope \( \frac{1}{4} \); y-intercept \((0, 1)\)

44) \( x^4 - 16x^2 + 64 \)

45) 9

46) \( (x^2 + 9)(x + 3)(x - 3) \)

47) \( \frac{-x^2 + 3x}{x^2 - 4} \)

48) \( d = 8 \)

49) \( y = 5x - w - z \)

50) \( \frac{9w^6}{x^2} \)

51) 21 hours

52) height: 18 cm; base: 14 cm

53) \((5s + 1)(25s^2 - 5s + 1)\)

54) \((2x - 3)(3x + 4)\)

55) 0.000456

56) 500

57) \( x + 4 - \frac{4}{x + 9} \)

58) \( \frac{14}{x - 5} \)

59) \( \frac{x^2 - 3x + 16}{(x - 4)(x + 4)(x + 1)} \)
Answer Key
Testname: WEBPAGE MATH 00100 FINAL EXAM PRACTICE TEST (REVISED)

60) 9
61) \(\emptyset\)
62) \([-9]\)
63) 55.6 ft per minute
64) \(\frac{16p^2}{7}\)
65) \(\frac{3a + 4b}{a + b}\)
66) 8 ft