

# Math 71 – Final Exam Study Guide

Name\_\_\_\_\_

These Pre-Algebra and Geometry problems are representative of what you might expect to find on the Final Exam. The Final Exam problems will be similar, but not exactly the same. Use this study guide to review concepts you already know and identify concepts you may need help with.

**Simplify.**

1)  $22 + 2 \cdot 9$

1) \_\_\_\_\_

2)  $(60 + 6^2) \div 3 \cdot 2^2$

2) \_\_\_\_\_

3)  $\frac{28(10 - 7) - 18}{3^2 - 3}$

3) \_\_\_\_\_

**Evaluate the expression for the given replacement values.**

4)  $8x - 3y$  for  $x = 9$  and  $y = 5$

4) \_\_\_\_\_

**Decide whether the given number is a solution of the given equation.**

5) Is 7 a solution of  $5m + 7 = 44$ ?

5) \_\_\_\_\_

**Write the phrase as a variable expression. Use x to represent "a number."**

6) 8 less than 3 times a number

6) \_\_\_\_\_

**Simplify.**

7)  $-(-13)$

7) \_\_\_\_\_

**Add.**

8)  $12 + (-15) + (-8)$

8) \_\_\_\_\_

**Solve.**

9) On part of a scenic tour of underground caves, Dave and Neil started at an elevation of  $-49$  feet. They then rose  $13$  feet. What was their elevation at this point?

9) \_\_\_\_\_

**Subtract.**

10)  $4 - (-1)$

10) \_\_\_\_\_

11)  $-5 - 5$

11) \_\_\_\_\_

**Add or subtract as indicated.**

12)  $-12 + 4 - (-19) + 5$

12) \_\_\_\_\_

**Multiply.**

13)  $-16(-4)$

13) \_\_\_\_\_

**Find the quotient.**

14)  $\frac{-49}{7}$

14) \_\_\_\_\_

**Simplify.**

15)  $4 - 7 \cdot 8$

15) \_\_\_\_\_

16)  $3 + 6 \cdot 5 - 18$

16) \_\_\_\_\_

**Evaluate the expression for  $x = -2, y = 3, z = -4$ .**

17)  $7x - y^2$

17) \_\_\_\_\_

**Solve the equation.**

18)  $d - 3 = -12$

18) \_\_\_\_\_

19)  $4y = -8$

19) \_\_\_\_\_

20)  $\frac{n}{4} = -6$

20) \_\_\_\_\_

**Simplify the expression by combining like terms.**

21)  $3b - 7b$

21) \_\_\_\_\_

22)  $-3b - 2a - 4c + 5b - 8a$

22) \_\_\_\_\_

**Multiply.**

23)  $10(8x)$

23) \_\_\_\_\_

24)  $-5(9a + 6)$

24) \_\_\_\_\_

**Simplify the expression.**

25)  $7x - 3(5 - x) + 39$

25) \_\_\_\_\_

**Solve the equation.**

26)  $6x + 8 = -52$

26) \_\_\_\_\_

27)  $2(x - 12) = -15 - 3$

27) \_\_\_\_\_

28)  $2n - 6 = 2$

28) \_\_\_\_\_

29)  $3x + 3 + 15 = 0$

29) \_\_\_\_\_

30)  $7x - 5 = 8(x + 3)$

30) \_\_\_\_\_

**Write the sentence as an equation. Use x to represent "a number."**

- 31) Ten subtracted from a number yields 15.

31) \_\_\_\_\_

**Solve.**

- 32) Nine times a number, added to -2, is 43. Find the number.

32) \_\_\_\_\_

- 33) Eight times the difference of 5 and a number amounts to 144. Find the number.

33) \_\_\_\_\_

- 34) The difference of a number and 9 is 47 less the number. Find the number.

34) \_\_\_\_\_

- 35) Mary and her brother John collect foreign coins. Mary has twice the number of coins that John has. Together they have 105 foreign coins. Find how many coins Mary has.

35) \_\_\_\_\_

- 36) A high school graduating class is made up of 339 students. There are 77 more girls than boys. How many boys are in the class?

36) \_\_\_\_\_

37)  $m - \frac{2}{3} = \frac{1}{4}$

37) \_\_\_\_\_

38)  $\frac{1}{3} - \frac{3}{7} = \frac{x}{21}$

38) \_\_\_\_\_

**Solve the equation.**

39)  $8x + 17 = 3x - 5$

39) \_\_\_\_\_

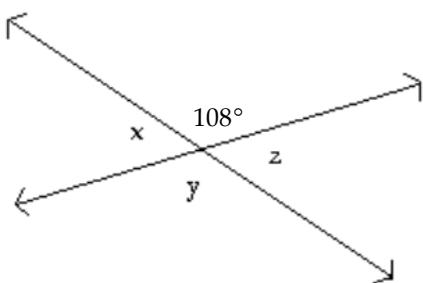
40)  $4(x - 1.1) = 9.3$

40) \_\_\_\_\_

**Find the measure of the indicated angle. The figure is not drawn to scale.**

- 41) Find the measure of  $\angle x$ .

41) \_\_\_\_\_



**Find the indicated angle.**

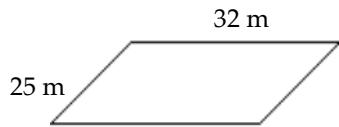
- 42) Find the complement of  $12^\circ$ .

42) \_\_\_\_\_

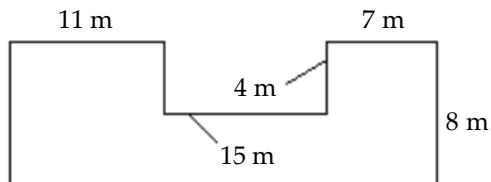
**Find the perimeter of the figure.**

43) Parallelogram

43) \_\_\_\_\_



44)

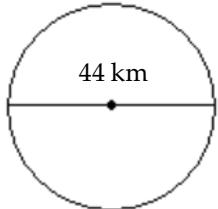


44) \_\_\_\_\_

**Find the exact or approximate circumference of the circle, as indicated.**

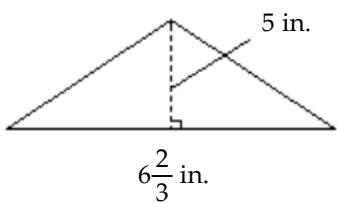
45) Find the exact circumference.

45) \_\_\_\_\_



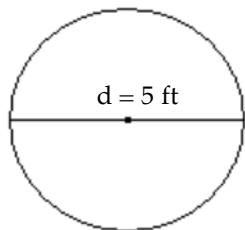
**Find the area of the geometric figure.**

46)



46) \_\_\_\_\_

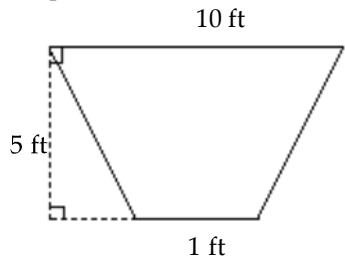
47)



47) \_\_\_\_\_

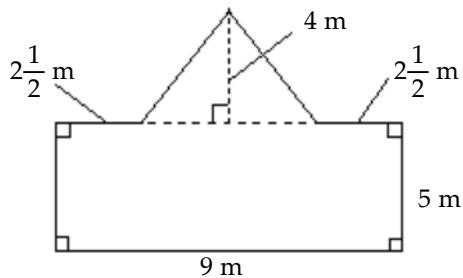
Use 3.14 for  $\pi$ .

48) Trapezoid



48) \_\_\_\_\_

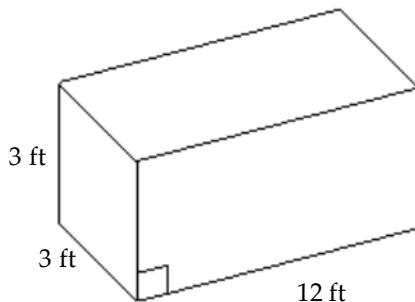
49)



49) \_\_\_\_\_

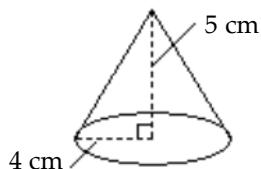
Find the volume of the solid.

50)



50) \_\_\_\_\_

51)



51) \_\_\_\_\_

Use  $\frac{22}{7}$  for  $\pi$ .**Solve.**52) Find the volume of a pyramid with a square base 5 inches on a side and a height of  $1\frac{3}{10}$  inches.

52) \_\_\_\_\_

53) A swimming pool is in the shape of a cylinder 6 feet deep and 8 feet in radius. Find the exact volume of the pool.

53) \_\_\_\_\_

- 54) Approximate to the nearest hundredth the volume of a sphere with a radius of 4.5 centimeters. Use 3.14 for  $\pi$ .

54) \_\_\_\_\_

**Convert the measurement as indicated.**

- 55) 19 yd to feet

55) \_\_\_\_\_

- 56) 29 in. = \_\_\_\_\_ ft \_\_\_\_\_ in.

56) \_\_\_\_\_

**Perform the indicated operation. Simplify the result if possible.**

- 57) 28 ft 1 in. – 21 ft 4 in.

57) \_\_\_\_\_

**Perform the indicated operation.**

- 58) 35 cm + 7.2 dm (in centimeters)

58) \_\_\_\_\_

**Convert as indicated.**

- 59) 38 oz to pounds

59) \_\_\_\_\_

- 60) 430 g to milligrams

60) \_\_\_\_\_

**Perform the indicated operation.**

- 61) 4.72 g + 253 mg (in g)

61) \_\_\_\_\_

- 62) 13 lb 15 oz + 30 lb 12 oz

62) \_\_\_\_\_

**Convert the measurement as indicated.**

- 63)  $12\frac{3}{4}$  gal to quarts

63) \_\_\_\_\_

**Perform the indicated operation.**

- 64) 28 gal – 2 qt 1 pt

64) \_\_\_\_\_

**Convert as indicated.**

- 65) 0.6 ml to liters

65) \_\_\_\_\_

**Solve. Remember to insert units when writing your answer.**

- 66) A hiker started the day with 3.8 L of water. At the first break, she drank 176 ml. How many liters of water remained?

66) \_\_\_\_\_

**Convert as indicated. If necessary, round to the nearest tenth of a degree.**

- 67) 124.1°C to degrees Fahrenheit

67) \_\_\_\_\_

- 68) Mia is running a fever of 104.9°F. Find this temperature as it would be shown on a Celsius thermometer.

68) \_\_\_\_\_

**Find the square root.**

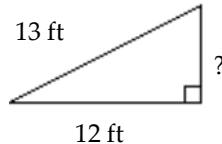
$$69) \sqrt{\frac{16}{25}}$$

$$69) \underline{\hspace{2cm}}$$

**Find the unknown length in the right triangle. If necessary, approximate the length to the nearest thousandth.**

70)

70)  $\underline{\hspace{2cm}}$



**Sketch the right triangle and find the length of the side not given. If necessary, approximate the length to the nearest thousandth.**

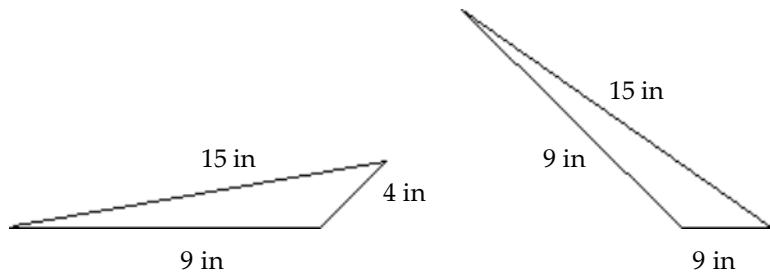
71) leg = 8, leg = 9

71)  $\underline{\hspace{2cm}}$

**Determine whether the pair of triangles is congruent.**

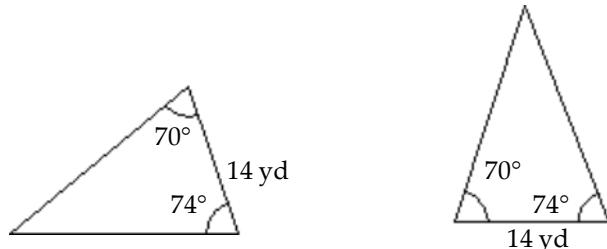
72)

72)  $\underline{\hspace{2cm}}$



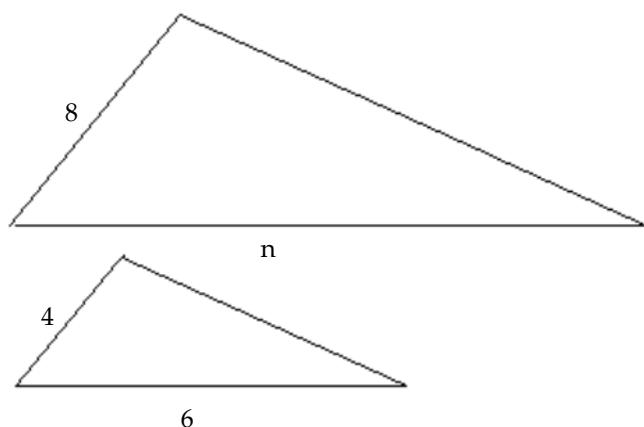
73)

73)  $\underline{\hspace{2cm}}$



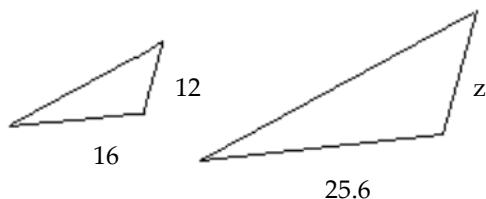
**Given that the pair of triangles is similar, find the unknown length of the side labeled with a variable.**

74)



74) \_\_\_\_\_

75)



75) \_\_\_\_\_

## Answer Key

### Testname: MATH 71 - FINAL REVIEW

- 1) 40
- 2) 128
- 3) 11
- 4) 57
- 5) no
- 6)  $3x - 8$
- 7) 13
- 8) -11
- 9) -36 ft
- 10) 5
- 11) -10
- 12) 16
- 13) 64
- 14) -7
- 15) -52
- 16) 15
- 17) -23
- 18) -9
- 19) -2
- 20) -24
- 21) -4b
- 22)  $-10a + 2b - 4c$
- 23)  $80x$
- 24)  $-45a - 30$
- 25)  $10x + 24$
- 26) -10
- 27) 3
- 28) 4
- 29) -6
- 30) -29
- 31)  $x - 10 = 15$
- 32) 5
- 33) -13
- 34) 28
- 35) 70 coins
- 36) 131 boys
- 37)  $\frac{11}{12}$
- 38) -2
- 39) -4.4
- 40) 3.425
- 41)  $72^\circ$
- 42)  $78^\circ$
- 43) 114 m
- 44) 90 m
- 45)  $44\pi$  km
- 46)  $16\frac{2}{3}$  sq in.
- 47) 19.625 sq ft

## Answer Key

### Testname: MATH 71 - FINAL REVIEW

48) 27.5 sq ft

49) 53 sq m

50) 108 cu ft

51)  $83\frac{17}{21}$  cu cm

52)  $10\frac{5}{6}$  cu in.

53)  $384\pi$  cu ft

54) 381.51 cu cm

55) 57 ft

56) 2 ft 5 in.

57) 6 ft 9 in.

58) 107 cm

59)  $2\frac{3}{8}$  lb

60) 430,000 mg

61) 4.973 g

62) 44 lb 11 oz

63) 51 qt

64) 27 gal 1 qt 1 pt

65) 0.0006 L

66) 3.624 L

67) 255.4°F

68) 40.5°C

69)  $\frac{4}{5}$

70) 5 ft

71) 12.042

72) not congruent

73) congruent

74) 12

75) 19.2