Name: _____

Date: _____ Grade: _____

Intermediate Math Skills

CHAPTER 2 TEST

Congratulations on completing this chapter! ***Answer the following questions to test your understanding of the material. When you finish, hand in your test to your teacher for a final grade. Each answer is worth 1.5 points.***

Choose or determine the correct answer.

1. _____ (Angular, Coefficient, Similar) objects have the same shape.

2. _____ (Equal, Covalent, Congruent) objects have the same shape and size.

3. _____ (Parallel, Congruent, Perpendicular) means an intersect at right angles (90°).

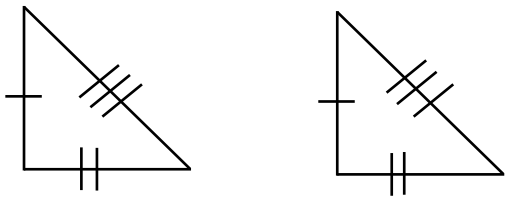
4. The slopes of perpendicular lines are negative _____ (reciprocals, lines, terms) of each other.

5. Vertical lines have an _____ (upward, undefined) slope.

6. Horizontal lines have a _____ (zero, downward) slope.

7. The coefficient in the term $53x$ is _____.

8. The two triangles below are _____ (congruent, similar, neither).



Match the following properties to determine congruency or similarity of two triangles.

9. _____ S-A-S Property of Triangles

10. _____ Angle-Side-Angle Property

11. _____ Angle-Angle-Angle Property

12. _____ Side-Side-Side Property

(a) Two angles and included side congruent

(b) All three corresponding angles congruent

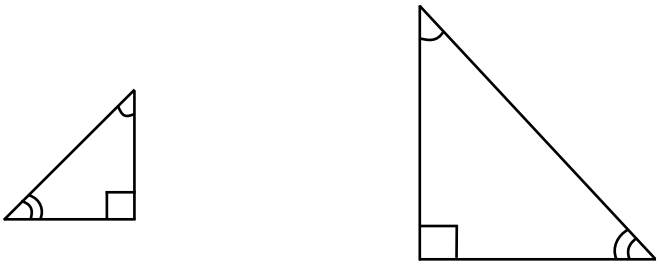
(c) All three corresponding sides congruent

(d) Two sides and angle formed by intersection congruent

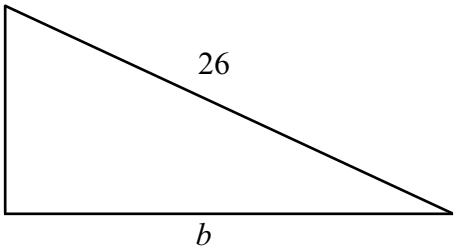
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Work the following problems related to the properties of triangles. (13-17)

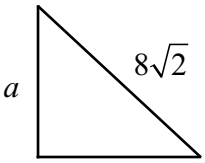
13. Determine the property (A-A-A, A-S-A, S-A-S or S-S-S) that you would use to show the two triangles are similar. Write the property on the blank. _____



14. Determine the length of side b in the 30 - 60 - 90 triangle below. b = _____



15. Determine the length of the indicated side of this 45 - 45 - 90 triangle.
a = _____ units

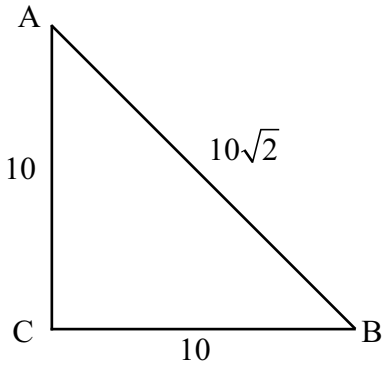


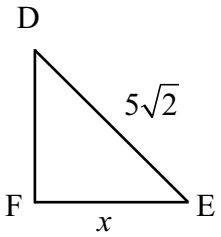
16. Determine the length of the shortest leg of a triangle similar to a 30 - 60 - 90 triangle with a hypotenuse of 100 inches if the hypotenuse of the second triangle is 50. Use the properties of similar triangles to calculate the length. Draw a picture of the two triangles in the space below. Set up a proportion and show your work. _____

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17. Determine the length of the legs of DE and EF. Use the Properties of Similar Triangles.

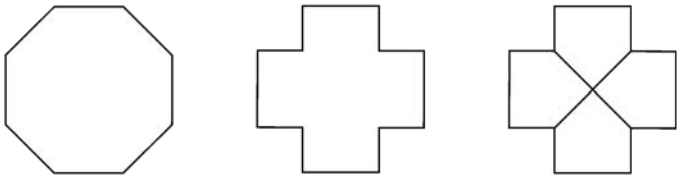
x = _____





Work the following problems related to networks (18-22).

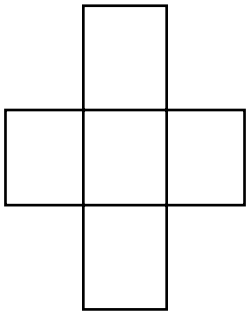
18. Which network below is not traversable? _____



19. Is the network below traversable? Yes _____ No _____

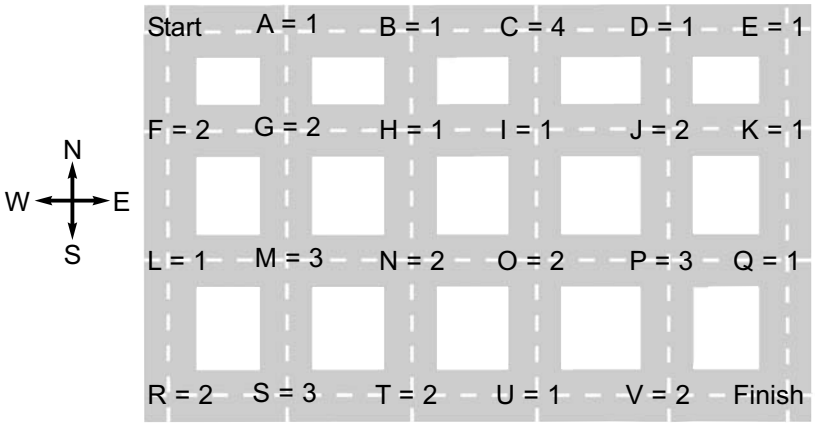


20. Is the network below a Euler Circuit? Yes _____ No _____

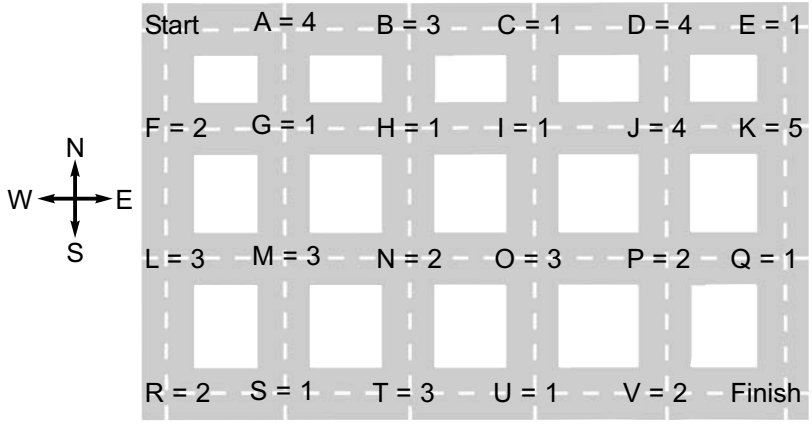


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21. Look at the figure below. The numbers represent the number of minutes to move through each intersection. Using the general rule of thumb, determine the fastest route from *Start* to *Finish*. You may only move East and South. Write the sequence of letters from *Start* to *Finish:* _____.

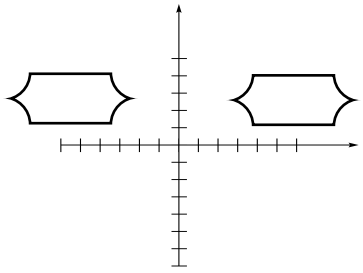


22. Look at the figure below. The numbers represent the number of minutes to move through each intersection. Using the general rule of thumb, calculate the fastest path from *Start* to *Finish:* _____ minutes.



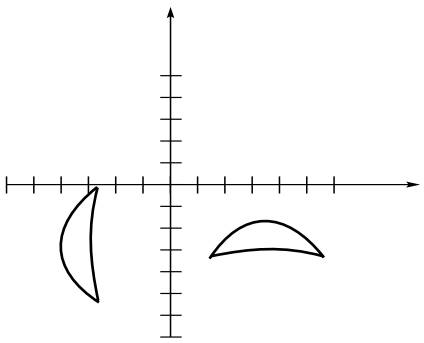
Write "Yes" on the blank if the following diagrams represent a reflection. Write "No" on the blank if a diagram does not represent a reflection.

23. _____

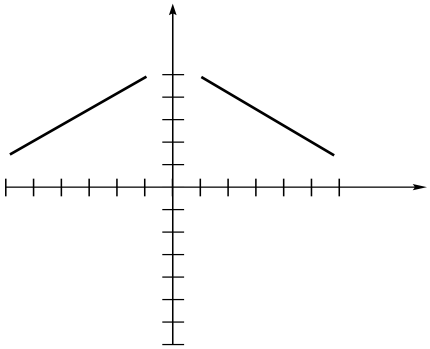


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24. _____

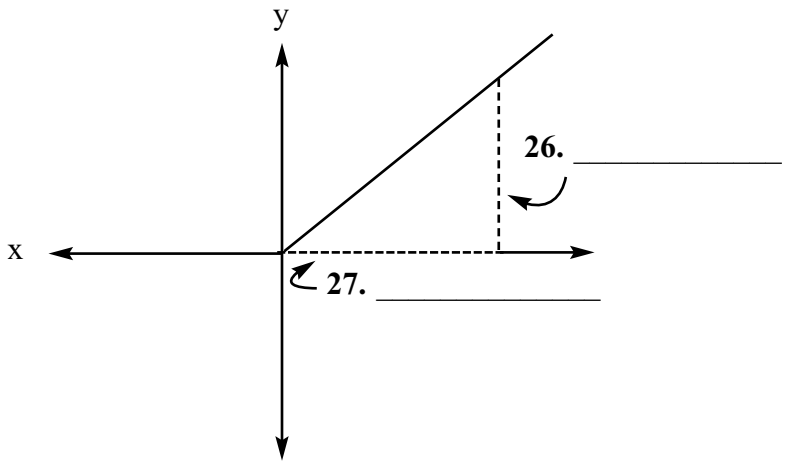


25. _____



Refer to the figure below and write the appropriate answers on the numbered blanks (26-27) in the graph.

(a) $x^2 - x^1$ (b) $y^2 - y^1$



Choose or determine the correct answer (28-30).

28. The distance along the y-axis is called the _____ (rise, run, length).

29. To determine the slope of a line, a _____ (ratio, proportion) is set up between the rise and the run.

30. When a point is labeled (*x, y*) this is known as the _____ (abscissa, ordinate, coordinates) of a point.

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Determine the correct answer for 31-32.

31. The slope of the line between the points (2, 10) and (4, 4). _____

32. After calculating the slope of a line through the following points, tell if the graph of the line will slope upward or downward going left to right.
(1, 2) and (3, 6)
slope = _____
upward or downward _____

Determine if the lines with the slopes described below intersect, are parallel or are perpendicular.

33. $m_1 = 2$ and $m_2 = 1$ _____

34. m_1 = zero and m_2 = undefined _____

35. $m_1 = -3$ and $m_2 = 1$ _____

Choose or determine the correct answers (36-41).

36. Calculate the slope of the lines through the following points. Then tell if the lines are parallel, perpendicular or intersect. Show your work.
l_1 through the points (3, 2) and (1, 4) and l_2 through the points (6, 5) and (0, 4).
slope l_1 = _____; slope l_2 = _____; parallel, perpendicular or intersect?
_____

37. $\sqrt[4]{1}$ index = _____

38. $\sqrt{169}$ = _____

39. Calculate the area of a rectangle with a length of 7 meters and a width of 5 meters.
_____
(a) 35 meters (b) 35 sq meters (c) 12 meters (d) 29 sq meters

40. Calculate the volume of a rectangular prism with dimensions of 4 inches by 3 inches by 1 inch. _____

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41. John is 12 years old. Timothy is twice as old as Jimmy. Jimmy is one-fourth as old as John. Calculate the ages of Timothy and Jimmy. Timothy _____; Jimmy _____

(a) Timothy 24; Jimmy 12
(b) Timothy 6; Jimmy 3
(c) Timothy 3; Jimmy 6
(d) Timothy 4; Jimmy 3

Simplify the following mathematical expressions. Show your work and place your answer on the blank.

42. $6x + 24 + 10x + 25$ _____

43. $2xy + 6xyz + 8xy + 8 + 5xyz$ _____

44. $5x + 2x^2 + 4x^3 + 2x^2 + 9x + 5x^3$ _____

Perform the indicated operations. Reduce your answers. Show your work and write your answer on the blank.

45. $\frac{2x}{4} + \frac{4y}{4} =$ _____

46. $\frac{a}{b} \div \frac{d}{c} =$ _____

47. $\frac{2x+3y}{5} + \frac{2x+3y}{5} =$ _____

48. $9^2 + [2^2 - 3(4 - 1)] + 5 =$ _____

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49. $3x^2 + 2\{2[3(x + 2)] + 2x^2\} + 3 =$ _____

50. $\dfrac{3[3+2(3+2)]}{2[3(3-2)]} =$ _____

Choose the best meaning for each Life Principle and write the letter of the response on the blank.

51. *"Every problem has a solution."* _____
(a) Some problems can be solved.
(b) A solution is a lot of problems added together.
(c) A problem and its solution go together, they are a pair.
(d) All problems are easily solved.

52. *"A good attitude is the reciprocal of a bad one."* _____
(a) An attitude is a reciprocal.
(b) Good attitudes are equal to bad attitudes.
(c) Reciprocals do not have attitudes.
(d) Good attitudes are opposite of bad attitudes.

53. *"Your actions are a reflection of your character."* _____
(a) What you do is what you are.
(b) To be a good character you must have a lot of action.
(c) A reflection occurs when you ponder your action.
(d) Your actions and character are merely reflections.

54. *"The path to success is sometimes a steep climb."* _____
(a) Paths that are steep always lead to success.
(b) Success is not always easy.
(c) To be successful one must climb the face of a cliff.
(d) Mountain climbers are always successful.

55. *"You are always right to refuse to do wrong."* _____
(a) You are always right.
(b) You are always wrong.
(c) Refusing wrong doing is always the right decision.
(d) Right and wrong are reciprocals.

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