Name: _____

Date: _____ Grade: _____

Intermediate Math Skills

CHAPTER 1 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 2.3 points.***

A list of data contains the numbers 1, 2, 3, 4, 5, 4, 4, 6, 6, 7. Determine the following:

1. the sample space _____

2. the elements in the event of all the odd numbers _____

3. the elements in the event of all the numbers greater than 5 _____

4. the elements in the event of all the numbers that appear more than once _____

5. the elements in the event of all the numbers between zero and 5 _____

The temperatures for one week in Death Valley were recorded as follows: 115°, 112°, 113°, 111°, 112°, 112° and 118°.

6. 114° is contained in the sample space. _____ (a)True or (b)False

7. The element in the event of the temperature that occurs the most is _____.

8. The elements in the event of the temperatures that occur only once are _____.

9. The elements in the event of the temperatures that occur at least once are _____.

10. If an event will occur 100% of the time, the probability is _____.
(a) 100 (b) 1 (c) zero (d) none of these

Calculate the following probabilities. Use the space provided to show your work and write your answers on the blanks.

11. A bag contains 6 blue, 5 red, and 4 white marbles. Calculate the probability of pulling a red marble from the bag. _____

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12. Look at the spinner above. It has an equal chance to stop on which colors?

_____

(a) white and dark gray (b) dark gray and light gray
(c) black and white (d) white and light gray

13. In question #11, the probability of pulling a black marble from the bag is _____.

Work the following problems, show your work, and write the answers on the blanks.

14. Professor K asked Nikki, one of his students, to pull a marble from the bag in question #11. Determine the probability that Nikki will pull a blue or white marble from the bag.

_____

15. Professor K gave another student, Dustin, an eight-sided number cube. The cube was numbered with even numbers, 2, 4, 6, 8, 10, 12, 14, and 16. Determine the chance that Dustin will roll a number between and including 6 and 16 (6, 8, 10, 12, 14, 16).

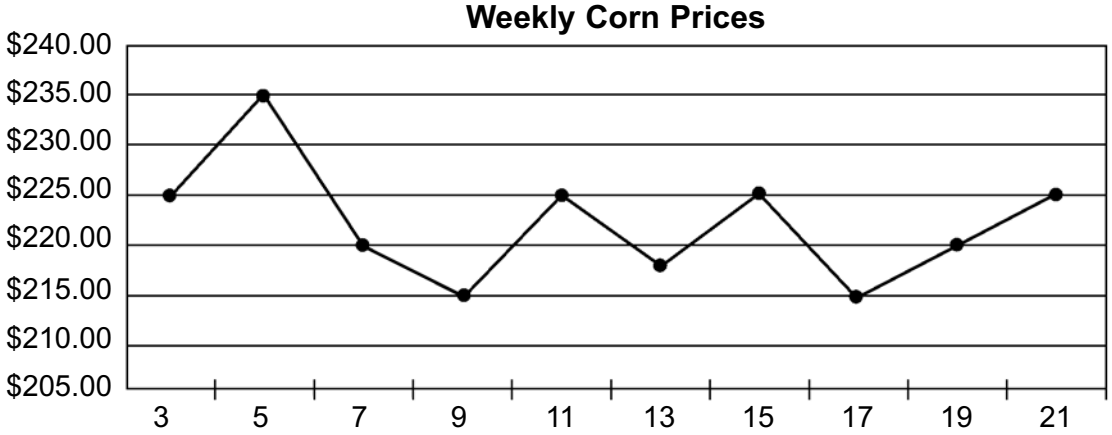
_____

16. Determine the formula to find the n^{th} term for the series of numbers; {6, 12, 18, 24, 30... }

_____.

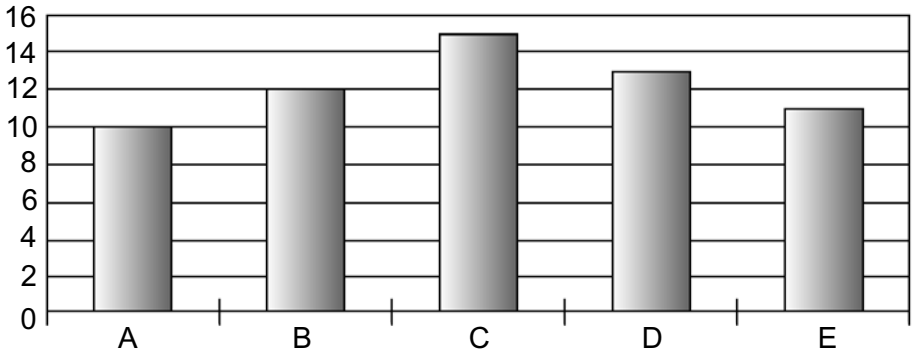
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Answer the questions related to (and below) each graph.

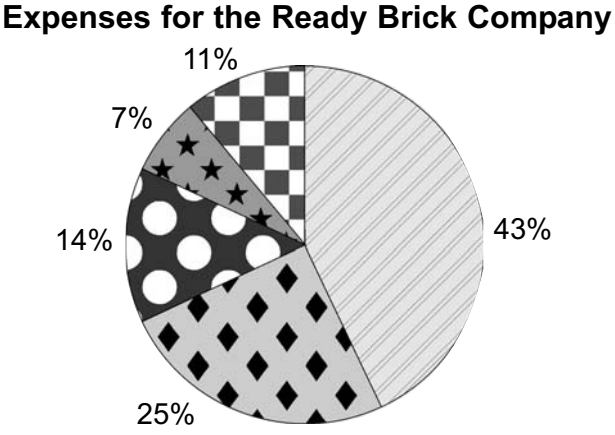


17. Choose the week of this 21-week span that ended with a corn price of $205.00. _____
(a) 6 (b) 17 (c) 13 (d) none of these

18. Choose the best estimate as to the price of corn in week number six. _____
(a) $227.50 (b) $240.00 (c) $235.00 (d) none of these



19. Choose the overall trend of the above bar graph. _____
(a) up (b) down (c) no overall trend



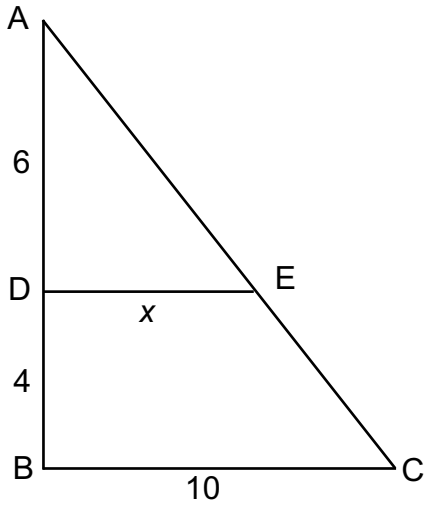
20. If payments to banks is approximately one-tenth of Ready Brick's expenses, which pattern represents bank payments. _____.
(a) checkered (b) stars (c) white circles (d) gray stripes

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21. If $\triangle ABC$_____(~ , π, ≅) $\triangle DEF$, then $\frac{AB}{DE} = \frac{AC}{DF} = \frac{BC}{EF}$.

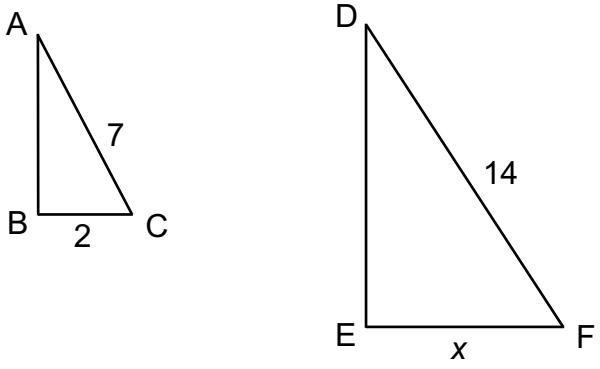
22. The symbol, ~ means _____.

Refer to the diagram below to answer question 23.



23. Calculate the length of the line segment DE. _____

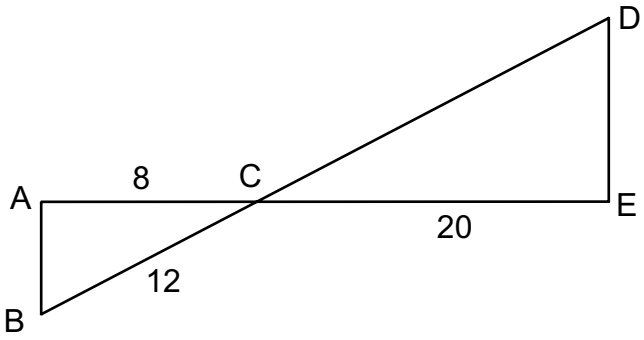
Refer to the diagram below to answer question 24.



24. The value of *x* is _____

(a) 2 (b) 6 (c) 5 (d) 4

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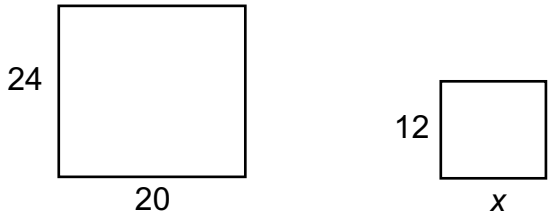
25. In the diagram above calculate the length of line segment CD. _____

Calculate the value of the indicated sides of similar objects. Show your work in the space provided and write your answers on the blanks. Draw a picture if necessary.

26. A local school installed a new flagpole. The principal asked Professor K to determine how much lanyard (rope) would be needed to go through the pulleys at the top and bottom of the flagpole. The principal did not know the height of the flagpole. Draw a picture to help visualize the height of the flagpole and Professor K's height. Professor K is 6 feet tall and he casts a shadow of four feet. At the same time the flagpole casts a shadow of 20 feet. Calculate the length of rope needed so the flag can be raised and lowered.

_____

27. Calculate the indicated length. x = _____.



28. The area of a rectangle is 10 square meters. If the length of one side is doubled, determine the area of the new rectangle. _____

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29. The area of a triangle is twice that of another triangle. Calculate the altitude of the second triangle if the base of the first triangle is 10 inches and the area of the first triangle is 50 square inches. The bases of the two triangles are of equal length. _____

(Remember the formula for the area of a triangle is $A = \frac{1}{2}bh$. A proportion can be set up comparing the area of the two triangles with their heights.)

Work the following problems. Show your work in the space provided. Write your answers on the blanks. Remember to draw a picture when necessary for you to visualize the problem.

30. A square of area 20.25 sq meters is compared to a square of area 81 sq meters. Calculate the length of the side of the second square, if the length of the side of the first is 4.5 meters. Choose the best answer. _____
(a) 8 (b) 7 (c) 9.5 (d) 9

31. The volume of cube A is one cubic unit. Calculate the dimensions of cube B, if the volume of cube B is 27 cubic units. _____

32. A cube with an edge length of five inches contains a volume of 125 cubic inches. The dimensions of another cube are three times that of the first cube. Calculate the volume of the second cube. _____ cubic inches

33. A paperweight on a desk is in the shape of a square pyramid. The number of exposed surfaces is _____.

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34. A bar of gold was sitting in the back corner of a shelf at the U.S. Treasury in Fort Knox, Kentucky. How many bars of gold should be stacked around it to cover all the exposed faces of the original bar of gold? _____

35. Determine a formula for the n^{th} term in the pattern seen in the following list of numbers. _____ (Use n = 1, 2, 3, 4, ….) {4, 5, 6, 7, 8, 9, …}

Matthew pulled a green marble from the cup that contained 3 red, 3 green, 3 black, one white and one blue marble. He placed the green marble back in the cup and proceeded to pull a green marble from the cup. Matthew did not return the green marble to the cup. Matthew then pulled a black marble from the cup. (Use this information to solve problems 36-38.)

36. P(green, green, black) = _____

37. Calculate the odds of pulling a black marble from the bag in #36. _____

38. Calculate the odds of **NOT** pulling a white marble from the bag in #36. _____

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39. Solve the problem. A number cube of eight sides is specially labeled with the numbers 2, 3, 3, 3, 3, 3, 4, 4. Calculate the odds of rolling a 3. _____

40. Write the value of the Roman numeral: DCCLXXVII = _____

Choose the best meaning for each Life Principle and place the letter of your answer in each blank.

41. *"Mathematics and life are predictable because of absolutes."* _____
(a) Life, like math is absolutely predictable.
(b) Because absolutes are fixed points of reference, accurate predictability is possible in many areas.
(c) Predictability is what makes absolutes work in math or life in general.

42. *"Each problem that I solved became a rule which served afterwards to solve other problems."* _____
(a) Problem solving becomes more and more difficult as we proceed through math.
(b) Each problem to be solved in math or life has a purpose.
(c) Learning is cumulative. What we learn in one situation can help solve problems in another.

43. *"Where there is matter, there is geometry."* _____
(a) In all matter we find principles of mathematics.
(b) Study hard because geometry matters!
(c) Understanding geometry is a matter for mathematicians to debate.

44. *"The height of a man's wisdom is determined by his character."* _____
(a) A person grows in accordance with his character development.
(b) A person's character is determined by how much knowledge he has gained.
(c) A person's wisdom is derived from his character. Excellent character means a high degree of wisdom.

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