

_____1.) Which of the following is *not* a statement?

- (a) Snapping your fingers is irritating.
 - (b) I can snap my fingers.
 - (c) Please stop snapping your fingers.
 - (d) John wouldn't stop snapping his fingers.
-

_____2.) Which of the following is the negation of 'All equations have solutions'?

- (a) Some equations do not have solutions.
 - (b) No equation has a solution.
 - (c) Some equations have solutions.
 - (d) Some things that have solutions are not equations.
-

_____3.) Consider the following argument.

John went to the store and Charlotte went to the room with the yellow wallpaper.
John did not go to the store.

Therefore, Charlotte did not go to the room with the yellow wallpaper.

This is an example of

- (a) deductive reasoning
 - (b) inductive reasoning
-

_____4.) Let $p =$ 'John has a dollar' and $q =$ 'Jane has a dollar.' Which of the following is symbolized by $p \vee \sim q$?

- (a) It is not true that John has a dollar and Jane has a dollar.
 - (b) Either John does not have a dollar, or Jane does have a dollar.
 - (c) John has a dollar, but Jane does not.
 - (d) Either John has a dollar or Jane does not have a dollar.
-

_____5.) Which of the following is the negation of "My car is red and your car is blue"?

- (a) My car isn't red and your car isn't blue.
 - (b) My car is red, but your car isn't blue.
 - (c) Either my car isn't red or your car isn't blue.
 - (d) If my car isn't red, then your car isn't blue.
-

_____6.) Which of the following is the negation of 'Either my door is open or your door is closed'?
(Assume that 'open' and 'closed' are negations of each other.)

- (a) My door is closed and your door is open.
 - (b) Either my door is closed or your door is open.
 - (c) My door isn't open, and your door is closed.
 - (d) If my door is closed, then your door is open.
-

_____7.) In scientific notation, $1623.7 =$

- (a) 16237×10^2
 - (b) 0.016237×10^2
 - (c) 1.6237×10^4
 - (d) 1.6237×10^3
-

_____8.) Which of the following numbers is the largest?

- (a) 523.49×10^{-3}
 - (b) 5234.9×10^{-5}
 - (c) 0.000052349×10^3
 - (d) 0.052349×10^{-2}
-

_____9.) Which of the following is not well-defined?

- (a) $\{x \mid x \text{ is a dog weighing more than 80 pounds}\}$
 - (b) $\{x \mid x \text{ is a dog at least 27 inches tall}\}$
 - (c) $\{x \mid x \text{ is a dog}\}$
 - (d) $\{x \mid x \text{ is a large dog}\}$
-

_____10.) Let $A = \{1, 2, 3, 4\}$. Which of the following is *not* a proper subset of A ?

- (a) $\{1, 3, 4\}$
 - (b) \emptyset
 - (c) $\{1, 2, 3, 4\}$
 - (d) $\{1, 2, 3\}$
-

_____11.) John has eight pens, three pencils, and two rulers. In how many different ways can he select a pen, a pencil, and a ruler to bring to a test?

- (a) 24
 - (b) 12
 - (c) 13
 - (d) 48
-

_____12.) Of the equations listed below, which has a graph that is a parabola opening up?

- (a) $y = 2 - 3x$
 - (b) $y = 3x^2 - 2$
 - (c) $y = 3x - 2$
 - (d) $y = 2 - 3x^2$
-

_____13.) John has been keeping careful track of the amount of lemonade he sells at his lemonade stand, and has determined that if he sees n customers in a day, then he sells

$$L = 0.28n$$

gallons of lemonade that day. What is the meaning of the slope in John's equation?

- (a) The ratio of lemonade to customers is 0.28:1.
 - (b) For each extra customer, John sells 0.28 more gallons of lemonade
 - (c) For every 0.28 customers, John sells an extra gallon of lemonade.
 - (d) John is not selling any lemonade.
-

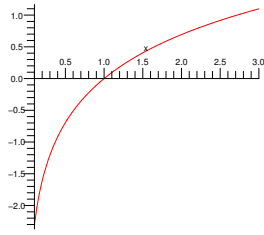
_____14.) The vertex of the parabola $8x - 2x^2$ is at

- (a) (2, 8)
 - (b) (2, -8)
 - (c) (-2, -8)
 - (d) (-2, 4)
-

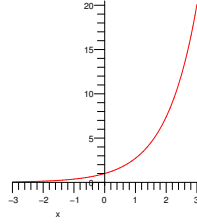
_____15.) Suppose that a kicked football follows a path given by $y = -0.1x^2 + 1.6x$, where x is the distance in feet from where the ball was kicked and y is the height of the ball above the ground. What is the maximum height the ball reaches?

- (a) 6.4 feet
 - (b) 8 feet
 - (c) 64 feet
 - (d) 1.7 feet
-

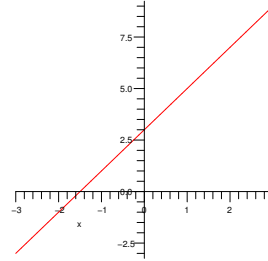
_____16.) Which of the curves below is decreasing exponentially?



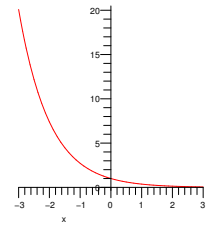
I



II



III



IV

- (a) III
- (b) II
- (c) IV
- (d) I

_____17.) The approximate percentage of a boy's adult height that he has reached at age x years is given by $P = 61.8 + 36 \log(x - 4)$ for $5 \leq x \leq 15$. What percentage of his adult height has a boy reached at age 8? (Round your answer to three decimal places.)

- (a) 97.800
- (b) 94.311
- (c) 83.474
- (d) 111,707

_____18.) Last year a certain coat cost \$360, but the price has gone up 15% since then. What is the price now?

- (a) \$306.00
- (b) \$666.00
- (c) \$414.00
- (d) \$375.00

_____19.) An item in a store was marked down 25%. If its sale price was \$54.54, what was its original price, to the nearest cent?

- (a) \$72.72
- (b) \$68.18
- (c) \$79.54
- (d) \$95.45

20.) Suppose you deposit \$2000 into an account paying 3.5% simple annual interest. If you make no other deposits or withdrawals, what is the value of the account after five years?

- (a) \$2350.00
 - (b) \$2375.37
 - (c) \$2381.89
 - (d) \$2392.52
-

21.) Suppose you buy a \$2500 certificate of deposit paying 3.7% annual interest compounded annually. To the nearest cent, how much is it worth at the end of four years?

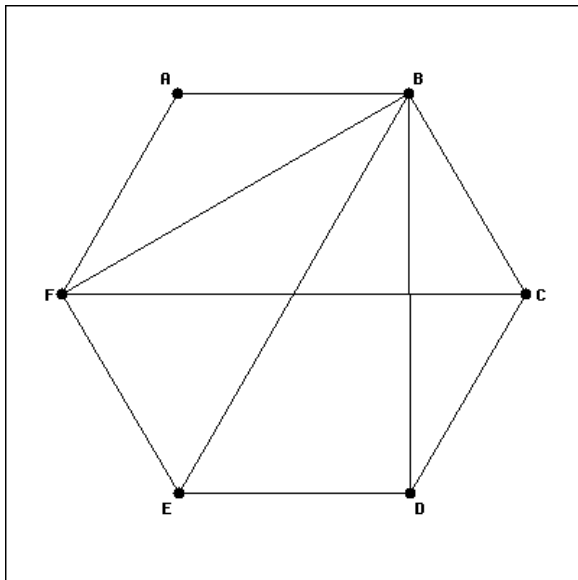
- (a) \$2981.05
 - (b) \$2898.12
 - (c) \$2870.00
 - (d) \$8806.88
-

22.) Suppose you deposit \$2000 in an account paying 4.1% annual interest, compounded monthly. If you make no other deposits or withdrawals, what is the value of the account after four years, to the nearest cent?

- (a) \$2348.73
 - (b) \$2328.00
 - (c) \$2421.53
 - (d) \$2355.77
-

23.) Suppose you buy a new car. You put down \$5000 in cash and finance the remaining \$21,600 with a four-year loan at 4.5% annual interest compounded monthly. To the nearest cent, what will your monthly payments be?

- (a) \$492.56
 - (b) \$606.57
 - (c) \$536.63
 - (d) \$511.27
-

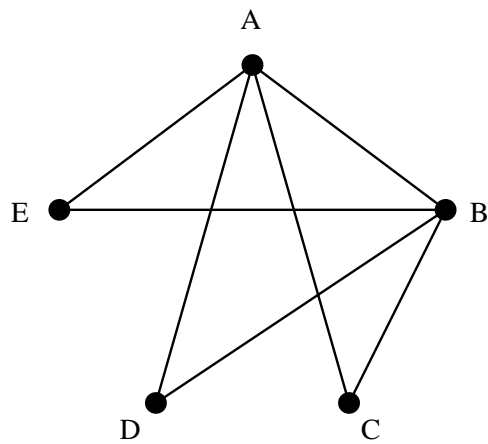


24.)

What is the degree of vertex D in the graph shown above?

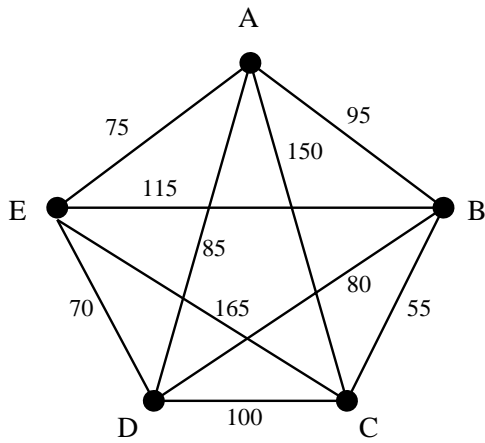
- (a) 4
- (b) 5
- (c) 2
- (d) 3

25.)



Which of the following is an Euler circuit in the graph shown?

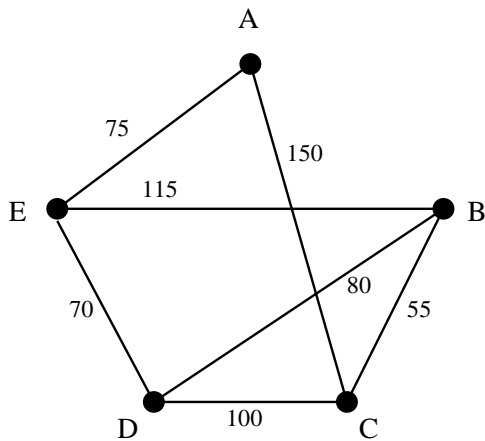
- (a) EADBCA
- (b) BCAEBDAB
- (c) CADEBEA
- (d) ABCAEBDA



26.)

The graph above shows the mileage between various towns labeled A , B , C , D , and E . Tom, who lives in A , wishes to visit all the towns exactly once and then return home. If the sorted-edge algorithm (in some classes this was called the nearest-neighbor algorithm) is used to determine an approximate solution for his best route, what is the total distance along that route?

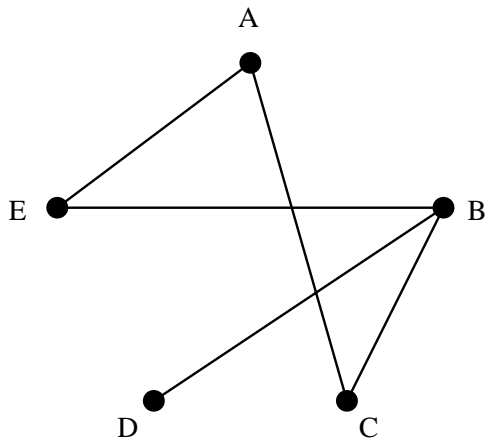
- (a) 435
- (b) 475
- (c) 375
- (d) 410



27.)

In the weighted graph shown, what is the total weight of a minimum spanning tree?

- (a) 520
- (b) 645
- (c) 320
- (d) 280



_____28.)

Which edge can be removed from the graph shown to produce a tree?

- (a) BC
- (b) BD
- (c) CE
- (d) DB

_____29.) Xavier, Yvonne, and Zenobia are running in an election in which the voting method is plurality. If Xavier gets 165 votes and Yvonne gets 414 votes, how many votes does Zenobia need to win?

- (a) 415
- (b) 580
- (c) 166
- (d) Zenobia cannot win this election.

_____30.) A club with ten members used a Borda count to elect its president this year. Rankings were as follows.

Member	1	2	3	4	5	6	7	8	9	10
Ranking	<i>ACB</i>	<i>BCA</i>	<i>CBA</i>	<i>BCA</i>	<i>CBA</i>	<i>ACB</i>	<i>BCA</i>	<i>CBA</i>	<i>BAC</i>	<i>ACB</i>

How many points did candidate *A* receive?

- (a) 3
- (b) 22
- (c) 17
- (d) 8

_____31.) Which of the following describes the Condorcet Criterion of social choice theory?

- (a) If a candidate receives a majority of the votes, that candidate should win.
 - (b) A candidate who wins a first election and gains additional support (without losing any of his original support) should win a second election.
 - (c) If candidate A wins a first election, then some candidates are removed and a second election is held, then candidate A should win the second election.
 - (d) If a candidate is favored when compared one-on-one with every other candidate, then that candidate should win.
-

_____32.) An majority-rule election with four candidates gave the following results.

Ranking	ABCD	BACD	BCDA	CADB	CDBA	DBCA
Voters	32	19	26	23	32	45

Who won?

- (a) B
- (b) D
- (c) C
- (d) A

KEY for Math 114 Practice Final

Math 114
Fall 2005

- 1.) C
- 2.) A
- 3.) A
- 4.) D
- 5.) C
- 6.) A
- 7.) D
- 8.) A
- 9.) D
- 10.) C
- 11.) D
- 12.) B
- 13.) B
- 14.) A
- 15.) A
- 16.) C
- 17.) C
- 18.) C
- 19.) A
- 20.) A
- 21.) A
- 22.) D
- 23.) A
- 24.) D
- 25.) D
- 26.) B
- 27.) D
- 28.) A
- 29.) A
- 30.) C
- 31.) D
- 32.) D