

Name _____

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

- 1) Use inductive reasoning to find a pattern, and then make a reasonable conjecture 1) _____
next number in the sequence.

7 8 10 13 17 22 28 _____

Answer: 35

Explanation:

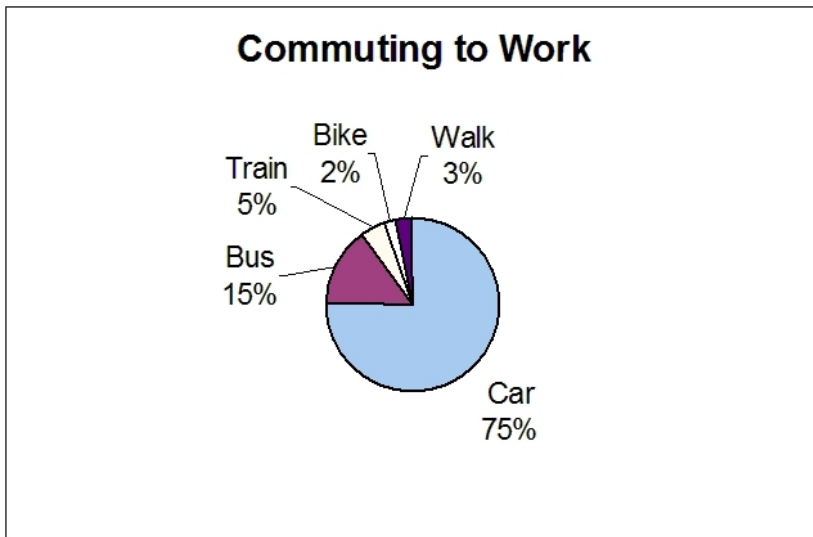
- 2) Bob and Sue are celebrating their 5th wedding anniversary. Estimate the total co 2) _____
their evening based on the prices below:

theater	\$78.39
dinner	\$77.54
drinks	\$13.60
taxi	\$11.50

Answer: approximately \$182

Explanation:

- 3) A company did a poll of how their 800 employees commuted to work. The resul 3) _____
shown in the graph below.



How many employees do not commute by bus or train?

Answer: 640 employees do not commute by bus or train.

Explanation:

- 4) Estimate the cost to live in an apartment for 1 year if the rent is \$235 per month and utilities are \$31 per month. 4) _____

Answer: approximately \$3,240

Explanation:

- 5) Use inductive reasoning to find a pattern, and then make a reasonable conjecture next number in the sequence. 5) _____

4 8 16 32 64 _____

Answer: 128

Explanation:

- 6) Round to the nearest thousand. 6) _____

231,207

Answer: 231,000

Explanation:

- 7) Use inductive reasoning to conjecture the rule that relates the number you selected to the final answer. Try to prove your conjecture using deductive reason 7) _____

Select a number:

Multiply by 3:

Subtract 9 from the answer:

Divide by 3:

Subtract the original number:

Answer: Final answer is always -3.

Select a number:

x

Multiply by 3:

$3x$

Subtract 9 from the answer:

$3x - 9$

Divide by 3:

$\frac{3x - 9}{3} = x - 3$

Subtract the original number:

$x - 3 - x = -3$

Explanation:

- 8) The peak rate of a phone company is 26¢ per minute, and the off-peak rate is 13¢ per minute. Find the savings for a 20-minute phone call if it was made during off-peak time as opposed to peak time. 8) _____

Answer: \$2.60

Explanation:

9) Estimate the total cost of the following meal at a sub shop.

9) _____

- sandwich \$4.89
- chips \$1.24
- soda \$0.99

Answer: approximately \$7

Explanation:

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

10) A car travels 363 miles on 6.6 gallons of gasoline. How many miles per gallon did the car get? (Round to the nearest tenth.)

10) _____

- A) 18.2 miles per gallon
- B) 49.5 miles per gallon
- C) 57.4 miles per gallon
- D) 55 miles per gallon

Answer: D

Explanation: A)
B)
C)
D)

11) Use inductive reasoning to find a pattern for the answers. Then use the pattern to guess the result of the final calculation, and perform the operation to see if your answer is correct.

11) _____

- $12,345,679 \times 9 = 111,111,111$
- $12,345,679 \times 18 = 222,222,222$
- $12,345,679 \times 27 = 333,333,333$

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$12,345,679 \times 36 = ?$

- A) 555,555,555
- B) 333,333,333
- C) 444,444,444
- D) 444,444,408

Answer: C

Explanation: A)
B)
C)
D)

- 12) Renee pays 28% of her salary in income tax. If she makes \$64,000 in taxable income, how much income tax does she pay? 12) _____
- A) Renee pays \$17,910 in taxes. B) Renee pays \$17,930 in taxes.
C) Renee pays \$17,940 in taxes. D) Renee pays \$17,920 in taxes.

Answer: D

Explanation: A)
 B)
 C)
 D)

- 13) Use inductive reasoning to make a conjecture about a rule that relates the original number to the final answer. Try to prove your conjecture using deductive reasoning. 13) _____

Select a number.

Add 20.

Multiply by 10.

Subtract 200.

Divide by 10.

Subtract the original number.

- A) The answer is always 180.
B) The answer is always the original number.
C) The answer is always -180.
D) The answer is always 0.

Answer: D

Explanation: A)
 B)
 C)
 D)

- 14) Use deductive reasoning to arrive at a conclusion. 14) _____

On Christmas Day, Thai restaurants and grocery stores are always open, so this Christmas Day we can

- A) eat fast food and go grocery shopping.
B) eat Mexican food and go grocery shopping.
C) eat Thai food and go grocery shopping.
D) watch football and open gifts.

Answer: C

Explanation: A)
 B)
 C)
 D)

15) Use inductive reasoning to find a pattern, and then make a reasonable conjecture for the number in the sequence. 15) _____

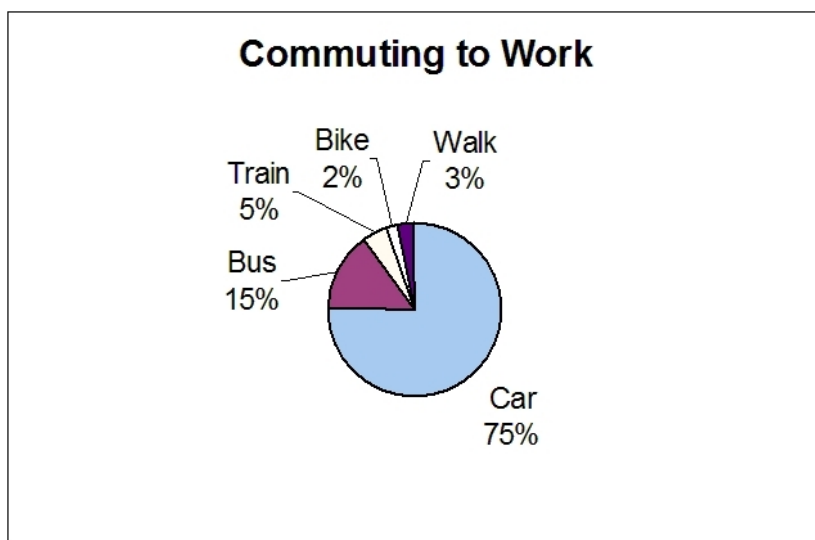
9 13 12 16 15 19 18 22

- A) 18 B) 26 C) 23 D) 21

Answer: D

- Explanation: A)
B)
C)
D)

16) A company did a poll of how their 800 employees commuted to work. The results are shown in the graph below. 16) _____



How many employees commute by car?

- A) 650 employees commute by car. B) 550 employees commute by car.
C) 500 employees commute by car. D) 600 employees commute by car.

Answer: D

- Explanation: A)
B)
C)
D)

17) Determine whether the type of reasoning used is inductive or deductive reasoning. 17) _____

Ian has already lost 4 MP3 players. He didn't spend a lot of money on his newest MP3 player because he knows he'll eventually lose that one too.

- A) inductive reasoning B) deductive reasoning

Answer: A

- Explanation: A)
B)

- 18) Ken saves \$140 per month. If this is 2.5% of his monthly income, how much does he earn per month? 18) _____
- A) Ken earns \$5,400 per month. B) Ken earns \$5,500 per month.
C) Ken earns \$5,600 per month. D) Ken earns \$5,300 per month.

Answer: C

Explanation: A)
 B)
 C)
 D)

- 19) Use inductive reasoning to find a pattern, and then make a reasonable conjecture for the number in the sequence. 19) _____
- 1 3 7 13 15 19 25 27 31 37 _____
- A) 43 B) 39 C) 41 D) 45

Answer: B

Explanation: A)
 B)
 C)
 D)

- 20) Emily has 19 phone cards worth either \$20 or \$15. How many of each does he have if the phone cards total \$310? 20) _____
- A) four \$20 cards and fifteen \$15 cards
B) eight \$20 cards and ten \$15 cards
C) five \$20 cards and fourteen \$15 cards
D) fourteen \$20 cards and five \$15 cards

Answer: C

Explanation: A)
 B)
 C)
 D)

- 21) The manager of an Internet cafe is having new counters custom-made. She wants to put 4 PCs on each counter with 4 feet between the PCs and 3 feet on each end. The PCs measure 18 inches wide and 24 inches high. What length of counters should the Internet cafe have made? 21) _____
- A) 25 ft B) 24 ft C) 28 ft D) 26 ft

Answer: B

Explanation: A)
 B)
 C)
 D)

22) Write a counter example to show that the statement is false. 22) _____

When an odd number is added to the product of two even numbers,
the result will be even.

- A) $4 \cdot 5 + 2 = 22$. 22 is even. B) $3 \cdot 5 + 4 = 19$. 19 is not even.
C) $4 \cdot 5 + 1 = 21$. 21 is not even. D) $4 \cdot 2 + 3 = 11$. 11 is not even.

Answer: D

Explanation: A)
 B)
 C)
 D)

23) Round 844,157,417 to the nearest thousand. 23) _____

- A) 844,157,000 B) 844,160,000 C) 844,157,417 D) 844,157,400

Answer: A

Explanation: A)
 B)
 C)
 D)

24) Determine whether the type of reasoning used is inductive or deductive reasoning. 24) _____

If an electrician says it will cost \$200 to fix my landscape lights, it will actually cost \$225. Since an electrician told me it would cost \$200 to fix my landscape lights, I can expect it to cost me \$225.

- A) inductive reasoning B) deductive reasoning

Answer: B

Explanation: A)
 B)

25) Round to the nearest hundredth. 25) _____

2.87491

- A) 2.875 B) 2.87 C) 2.874 D) 2.88

Answer: B

Explanation: A)
 B)
 C)
 D)

26) Write a counter example to show that the statement is false. 26) _____
When any number is multiplied by 8 and the digits of the answer are added, the sum will be divisible by 8.

- A) $5 \times 8 = 40$; $4 + 0 = 4$, which is not divisible by 8.
- B) $10 \times 8 = 80$; $8 + 0 = 8$, which is divisible by 8.
- C) $11 \times 8 = 88$; $8 + 8 = 16$, which is divisible by 8.
- D) $111 \times 8 = 888$; $8 + 8 + 8 = 24$, which is not divisible by 8.

Answer: A

Explanation: A)
B)
C)
D)

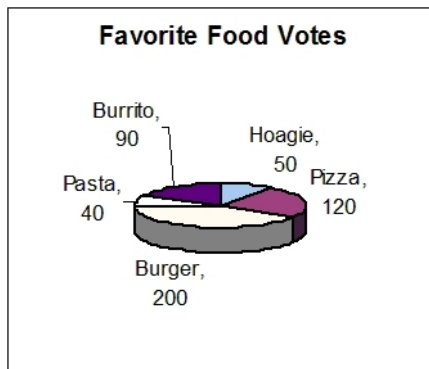
27) The length of a garden is double its width. There is a fence around the perimeter that measures 126 ft. What are the length and width of the garden? 27) _____

- A) length = 42 ft, width = 21 ft
- B) length = 31.5 ft, width = 63 ft
- C) length = 63 ft, width = 31.5 ft
- D) length = 21 ft, width = 42 ft

Answer: A

Explanation: A)
B)
C)
D)

28) The figure represents the results of a survey on favorite foods. 28) _____



What is the total number of votes represented in this graph?

- A) 400 votes
- B) 550 votes
- C) 450 votes
- D) 500 votes

Answer: D

Explanation: A)
B)
C)
D)

29) Use inductive reasoning to find a pattern for the answers. Then use the pattern to guess the result of the final calculation, and perform the operation to see if your answer is correct. 29) _____

$$\begin{aligned}0^2 + 1 &= 1 \\1^2 + 3 &= 2^2 \\2^2 + 5 &= 3^2 \\3^2 + 7 &= 4^2 \\4^2 + 9 &= 5^2 \\&\cdot \\&\cdot \\&\cdot \\5^2 + 11 &= ?\end{aligned}$$

- A) 7^2 B) 31 C) 6^2 D) 35

Answer: C
Explanation: A)
 B)
 C)
 D)

30) A recipe calls for 3 cups of flour. If the baker wants to make half a recipe, how much flour should be used? 30) _____

- A) $1\frac{1}{2}$ cups B) 5 cups C) $\frac{2}{3}$ cup D) 6 cups

Answer: A
Explanation: A)
 B)
 C)
 D)

31) Phil has 15 stamps of denominations \$0.37 and \$0.23. If the total value of the stamps is \$4.85 how many \$0.37 stamps does Phil have? 31) _____

- A) 10 B) 9 C) 5 D) 11

Answer: A
Explanation: A)
 B)
 C)
 D)

- 32) A person's monthly budget includes \$312 for food, \$182 for gasoline, and \$154 for utilities. If the person earns \$1,916 per month, how much money is left for other expenses? 32) _____
- A) \$1,422 B) \$1,580 C) \$1,268 D) \$634

Answer: C

Explanation: A)
B)
C)
D)

ESSAY. Write your answer in the space provided or on a separate sheet of paper.

- 33) Read the following scenario and determine whether the type of reasoning used by Paul is inductive or deductive. Explain how you decided.

Paul knew that his friend, Leanne, had been late the past 8 workdays, so he didn't save a seat for her at morning meeting.

Answer: Inductive. Paul assumed that because Leanne had a pattern of being late, this pattern would continue.

- 34) Read the following scenario and determine whether the type of reasoning used by Leanne is inductive or deductive. Explain how you decided.

Leanne was concerned that if she continued to be late for work, she would lose her job.

Answer: Deductive. Leanne knew that consistently being late can cause one to lose their job, so she reasoned that her tardiness could cause this to happen.

Answer Key
Testname: C1

- 1) 35
- 2) approximately \$182
- 3) 640 employees do not commute by bus or train.
- 4) approximately \$3,240
- 5) 128
- 6) 231,000
- 7) Final answer is always -3.

Select a number:	x
Multiply by 3:	$3x$
Subtract 9 from the answer:	$3x - 9$
Divide by 3:	$\frac{3x - 9}{3} = x - 3$
Subtract the original number:	$x - 3 - x = -3$

- 8) \$2.60
- 9) approximately \$7
- 10) D
- 11) C
- 12) D
- 13) D
- 14) C
- 15) D
- 16) D
- 17) A
- 18) C
- 19) B
- 20) C
- 21) B
- 22) D
- 23) A
- 24) B
- 25) B
- 26) A
- 27) A
- 28) D
- 29) C
- 30) A
- 31) A
- 32) C
- 33) Inductive. Paul assumed that because Leanne had a pattern of being late, this pattern would continue.

Answer Key

Testname: C1

- 34) Deductive. Leanne knew that consistently being late can cause one to lose their job, so she reasoned that her tardiness could cause this to happen.