NEW YORK CITY DEPARTMENT OF EDUCATION
Thomas A. Edison Career & Technical Education High School
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Name: _____

Summer Assignment For Incoming Freshmen

Part 1: Please complete the following 40 multiple choice questions. You must attach a separate piece of paper with all work shown and then record final answer in space provided. Each question is worth 1 credit.

1) The statement "If x is divisible by 8, then it is divisible by 6" is false if x equals
(1) 6 (3) 32
(2) 14 (4) 48

2) The expression $\sqrt{50}$ can be simplified to
(1) $5\sqrt{2}$ (3) $2\sqrt{25}$
(2) $5\sqrt{10}$ (4) $25\sqrt{2}$

3) The Pentagon building in Washington, D.C., is shaped like a regular pentagon. If the length of one side of the Pentagon is represented by $n + 2$, its perimeter would be represented by
(1) $5n + 10$ (3) $n + 10$
(2) $5n + 2$ (4) $10n$

4) The product of $4x^2y$ and $2xy^3$ is
(1) $8x^2y^3$ (3) $8x^3y^4$
(2) $8x^3y^3$ (4) $8x^2y^4$

5) Which equation is an illustration of the additive identity property?
(1) $x \cdot 1 = x$ (3) $x - x = 0$
(2) $x + 0 = x$ (4) $x \cdot \frac{1}{x} = 1$

6) Which number has the greatest value?
(1) $1\frac{2}{3}$ (3) $\frac{\pi}{2}$
(2) $\sqrt{2}$ (4) 1.5

7) If the number represented by n-3 is an odd integer, which expression represents the next greater odd integer?
(1) n-5 (3) n-1
(2) n-2 (4) n+1

8) Twenty-five percent of 88 is the same as what percent of 22?
(1) $12\frac{1}{2}\%$ (3) 50%
(2) 40% (4) 100%

9) If $t = -3$, then $3t^2 + 5t + 6$ equals
(1) -36 (3) 6
(2) -6 (4) 18

10) Which inequality is represented in the graph below?

(1) $-4 < x < 2$ (3) $-4 < x \leq 2$
(2) $-4 \leq x < 2$ (4) $-4 \leq x \leq 2$

11) Which number is rational?
(1) π (3) $\sqrt{7}$
(2) $\frac{5}{4}$ (4) $\sqrt{\frac{3}{2}}$

12) The quotient of $-\frac{15x^8}{5x^2}$, $x \neq 0$, is
(1) $-3x^4$ (3) $-3x^6$
(2) $-10x^4$ (4) $-10x^6$

13) What is the value of 3^{-2} ?
(1) $\frac{1}{9}$ (3) 9
(2) $-\frac{1}{9}$ (4) –9

14) There are 461 students and 20 teachers taking buses on a trip to a museum. Each bus can seat a maximum of 52. What is the *least* number of buses needed for the trip?
(1) 8 (3) 10
(2) 9 (4) 11

15) The distance from Earth to the Sun is approximately 93 million miles. A scientist would write that number as
(1) 9.3×10^6 (3) 93×10^7
(2) 9.3×10^7 (4) 93×10^{10}

16) Helen is using a capital H in an art design. The H has
(1) only one line of symmetry
(2) only two points of symmetry
(3) two lines of symmetry and only one point of symmetry
(4) two lines of symmetry and two points of symmetry

17) If one-half of a number is 8 less than two-thirds of the number, what is the number?
(1) 24 (3) 48
(2) 32 (4) 54

18) The value of 5! is
(1) $\frac{1}{5}$ (3) 20
(2) 5 (4) 120

19) What is the approximate circumference of a circle with radius 3?
(1) 7.07
(2) 9.42
(3) 18.85
(4) 28.27

20) If n represents an odd number, which computation results in an answer that is an even number?
(1) $2 \times n + 1$ (3) $3 \times n - 2$
(2) $2 \times n - 1$ (4) $3 \times n + 1$

21) What is the smallest integer greater than 1 that is both the square of an integer and the cube of an integer?
(1) 8 (3) 36
(2) 9 (4) 64

22) Which expression must be added to $3x - 7$ to equal 0?
(1) 0 (3) $-3x - 7$
(2) $3x + 7$ (4) $-3x + 7$

23) Jamie is 5 years older than her sister Amy. If the sum of their ages is 19, how old is Jamie?
(1) 5 (3) 12
(2) 7 (4) 14

24) The expression $15 - 3[2 + 6(-3)]$ simplifies to
(1) –45 (3) 63
(2) –33 (4) 192

25) The expression $2^3 \bullet 4^2$ is equivalent to

(1) 2^7 (3) 8^5

(2) 2^{12} (4) 8^6

26) A total of $450 is divided into equal shares. If Kate receives four shares, Kevin receives three shares, and Anna receives the remaining two shares, how much money did Kevin receive?

(1) $100 (3) $200

(2) $150 (4) $250

27) What is the diameter of a circle whose circumference is 5?

(1) $\frac{2.5}{\pi^2}$ (3) $\frac{5}{\pi^2}$

(2) $\frac{2.5}{\pi}$ (4) $\frac{5}{\pi}$

28) A roll of candy is shown in the accompanying diagram.

The shape of the candy is best described as a

(1) rectangular solid

(2) pyramid

(3) cone

(4) cylinder

29) Which equation is an illustration of the additive inverse property?

(1) $x \cdot 1 = x$ (3) x – x = 0

(2) x + 0 = x (4) $x \cdot \frac{1}{x} = 1$

30) On June 17, the temperature in New York City ranged from 90° to 99°, while the temperature in Niagara Falls ranged from 60° to 69°. The difference in the temperatures in these two cities must be between

(1) 20° and 30° (3) 25° and 35°

(2) 20° and 40° (4) 30° and 40°

31) If 6 and x have the same mean (average) as 2, 4, and 24, what is the value of x?

(1) 5 (3) 14

(2) 10 (4) 36

32) In a hockey league, 87 players play on seven different teams. Each team has at least 12 players. What is the largest possible number of players on any one team?

(1) 13 (3) 15

(2) 14 (4) 21

33) The ratio of the corresponding sides of two similar squares is 1 to 3. What is the ratio of the area of the smaller square to the area of the larger square?

(1) 1: $\sqrt{3}$ (3) 1:6

(2) 1:3 (4) 1:9

34) The expression $\sqrt{93}$ is a number between

(1) 3 and 9 (3) 9 and 10

(2) 8 and 9 (4) 46 and 47

35) Which letter below has point symmetry, but does *not* have line symmetry?

(1) H (3) A

(2) N (4) E

36) If the number represented by n-1 is an odd integer, which expression represents the next greater even integer?

(1) n-5 (3) n-1

(2) n-2 (4) n+1

37) Three times as many robins as cardinals visited a bird feeder. If a total of 20 robins and cardinals visited the feeder, how many were robins?

(1) 5 (3) 15

(2) 10 (4) 20

38) If one-half of a number is 8 less than two-thirds of the number, what is the number?

(1) 24 (3) 48

(2) 32 (4) 54

39) Which is a rational number?

(1) $\sqrt{8}$ (3) $5\sqrt{9}$

(2) π (4) $6\sqrt{2}$

40) If the circumference of a circle is doubled, the diameter of the circle

(1) remains the same (3) is multiplied by 4

(2) increases by 2 (4) is doubled

ANSWERS

1.	11.	21.	31.
2.	12.	22.	32.
3.	13.	23.	33.
4.	14.	24.	34.
5.	15.	25.	35.
6.	16.	26.	36.
7.	17.	27.	37.
8.	18.	28.	38.
9.	19.	29.	39.
10.	20.	30.	40.

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Part 2: Please answer the following questions and make sure to show all work. Total is worth 10 credits.

1. Tom bought these three T-shirts at the sale price of $14.50.
   How much money did he save compared to the original total price of the T-shirts?
   Show your calculations. $ _____

2. What percentage of the original total price did Tom save? _____%
   Show your work.

3. Harry also paid $14.50 for three T-shirts at the sale. The sale price saved Harry 30% of the original price of the three T-shirts.
   What is the original total price of his three T-shirts? $_____
   Show your calculations.