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In a video game, each player starts the game with k points and loses 2 points each time a task is not completed. If a player who gains no additional points and fails to complete 100 tasks has a score of 200 points, what is the value of k ?

- A) 0
- B) 150
- C) 250
- D) 400

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10

In 1855, Louis Remme traveled from Sacramento, California, to Portland, Oregon, stopping to rest for only 10 hours of the 143 hours it took him to reach Portland. If his average speed while traveling without resting was 5 miles per hour, how many miles did Louis Remme travel?

- A) 665
- B) 705
- C) 715
- D) 765

15

Planet	Acceleration due to gravity $\left(\frac{m}{sec^2}\right)$
Mercury	3.6
Venus	8.9
Earth	9.8
Mars	3.8
Jupiter	26.0
Saturn	11.1
Uranus	10.7
Neptune	14.1

The chart above shows approximations of the acceleration due to gravity in meters per second squared $\left(\frac{m}{sec^2}\right)$ for the eight planets in our solar system. The weight of an object on a given planet can be found by using the formula $W = mg$, where W is the weight of the object measured in newtons, m is the mass of the object measured in kilograms, and g is the acceleration due to gravity on the planet measured in $\frac{m}{sec^2}$.

100. What is the weight, in newtons, of an object on Mercury with a mass of 90 kilograms?

- A) 25
- B) 86
- C) 197
- D) 324

16

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11. An object on Earth has a weight of 150 newtons. On which planet would the same object have an approximate weight of 170 newtons?

- A) Venus
- B) Saturn
- C) Uranus
- D) Neptune

17

The current density in a wire is defined as the current, in milliamperes, flowing through the wire divided by the cross-sectional area of the wire, in square millimeters. What is the current density, in milliamperes per square millimeter, in a copper wire with a cross-sectional area of 6 square millimeters when a current of 15 milliamperes flows through the wire?

- A) 0.4
- B) 2.5
- C) 15
- D) 90

18

11.

$$b = 2.35 + 0.25x$$

$$c = 1.75 + 0.40x$$

In the equations above, b and c represent the price per pound, in dollars, of beef and chicken, respectively, x weeks after July 1 during last summer. What was the price per pound of beef when it was equal to the price per pound of chicken?

- A) \$2.60
- B) \$2.85
- C) \$2.95
- D) \$3.35

19

12. An economist modeled the demand Q for a certain product as a linear function of the selling price P . The demand was 20,000 units when the selling price was \$40 per unit, and the demand was 15,000 units when the selling price was \$60 per unit. Based on the model, what is the demand, in units, when the selling price is \$55 per unit?

A. 16,250
 B. 16,500
 C. 16,750
 D. 17,500

20

13. The equation $0.95c + 0.05n = 8.87$ represents the density of a copper-zinc alloy, where c is the density, in grams per cubic centimeter (g/cm^3), of copper, n is the density, in g/cm^3 , of zinc, and $8.87 \text{ g}/\text{cm}^3$ is the density of the alloy. The density of copper is $8.96 \text{ g}/\text{cm}^3$. What is the density of zinc, in g/cm^3 ?

A) 0.09
 B) 0.47
 C) 7.16
 D) 8.51

21

13. A group of 12 friends went bowling. They each rented shoes for \$3.00 a pair, and 4 friends bowled 2 games each, while 8 friends bowled 3 games each. Each game bowled cost each person the same amount. The total cost for the shoe rentals and the games bowled was \$212.00. What was the cost, in dollars, of each game bowled? (Note: Disregard the \$ sign when gridding your answer.)

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13.
$$g(t) = \frac{5(7t - 12c)}{2} - 25$$

The number of people who go to a public swimming pool can be modeled by the function g above, where c is a constant and t is the air temperature in degrees Fahrenheit ($^{\circ}\text{F}$) for $70 < t < 100$. If 350 people are predicted to go to the pool when the temperature is 90°F , what is the value of c ?

A) 20
 B) 40
 C) 60
 D) 80

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14. When a buffet restaurant charges \$12.00 per meal, the number of meals it sells per day is 400. For each \$0.50 increase to the price per meal, the number of meals sold per day decreases by 10. What is the price per meal that results in the greatest sales, in dollars, from meals each day?

A) \$16.00
 B) \$20.00
 C) \$24.00
 D) \$28.00

24

16. A buret is a tool designed to transfer precise amounts of liquid. A buret initially contains 70.00 milliliters (mL) of a solution, and a beaker initially contains 20.00 mL of the solution. The buret drips solution into the beaker. Each drip contains 0.05 mL of solution. After how many drips will the volumes of the solutions in the buret and beaker be equal?

13 D
 14 A
 15 B

16 B
 17 B
 18 D

19 A
 20 C
 21 5.5 1/2

22 B
 23 A
 24 500