Q1. On a roulette wheel with 37 numbers (0 and 1 through 36), what is the probability that the ball lands on a prime number?

A. $\frac{6}{37}$

B. $\frac{11}{37}$

C. $\frac{13}{37}$

D. $\frac{17}{37}$

Q2. The sum of 12 consecutive natural numbers is 222. What is the first number?

A. 13
B. 15
C. 17
D. 18

Q3. Jordan climbs a flight of 7 stairs. He can take 1, 2, or 3 steps at a time. How many different ways can Jordan climb the stairs?

A. 13
B. 27
C. 35
D. 44

Q4. Find the simplest form of $\frac{(\sqrt{10}-3)^2-7}{\sqrt{10}+\sqrt{7}-3}$.

A. $\sqrt{3}-7-\sqrt{10}$
B. $\sqrt{7}-3$
C. $\sqrt{3}-1-\sqrt{10}$
D. $\sqrt{10}-3-\sqrt{7}$

Q5. The average of four test scores is 75. If a fifth test score of 90 is added, what is the new average of the five scores?

A. 73
B. 78
C. 82
D. 84

Q6. If $a^2+b^2=41$ and $ab=20,$ find the value of $\frac{a+b}{a-b}$.

A. 9
B. 12
C. 14
D. 17

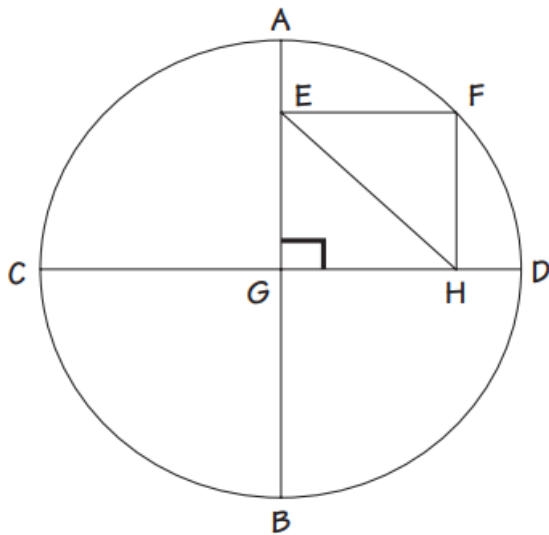**Q7.** How many divisors does $10^3 \times 12^2$ have?

A. 96
B. 64
C. 42
D. 12

Q8. What is the last digit of 7^{2025} ?

A. 0
B. 1
C. 7
D. 9

Q9. On Monday, Kevin bought 5 pencils and 4 erasers for $17. On Tuesday, he bought 2 pencils and 3 erasers for $11. How much does one pencil cost?

A. 1
B. 2
C. 3
D. 4

Q10. Rectangle EFHG is inscribed in the circle below. Line AE represents 5 cm. Line EG represents 7 cm.

What is the length of Line EH?

A. 6
B. 12
C. $7\sqrt{2}$
D. 14

Q11. Solve the equation.

$$\frac{15}{6 - \dfrac{4}{1 + \dfrac{6}{5 + \dfrac{3}{x+1}}}} = 3$$

A. -1
B. -2
C. 2
D. 1

Q12. Fifteen workers can complete 30 tasks in 10 days. How many days will it take 20 workers to complete 50 tasks?

A. 10

Q13. A goat is tied to the corner of a barn by a 9-meter rope that slides freely. The barn is a rectangle measuring 4 m by 11 m, and the goat is kept on the outside. What is the area that the goat can graze? (Use π=3.)

A. 192
B. 198
C. 201
D. 203

Q14. Find the value of the expression below.

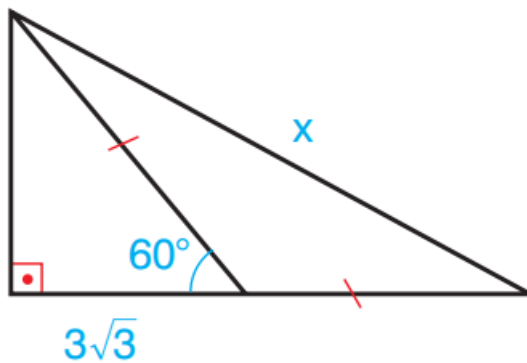$$\sqrt{26 + 15\sqrt{3}} - \sqrt{26 - 15\sqrt{3}}$$

A. 5
B. $5\sqrt{2}$
C. $2\sqrt{5}$
D. 2

Q15. Find the value of x.

A. 9
B. $9\sqrt{3}$
C. $18\sqrt{3}$
D. 18

Q16. In a class of 30 students:

- 16 like Math,

- 18 like Science,

- 20 like English.
  Exactly:

- 6 like both Math and Science,

- 7 like both Science and English, and

- 5 like both Math and English.
  How many students like all three subjects?

(Answer: 3 students)

Q17. If $x + \frac{1}{x} = 7$, find the value of $x^3 + \frac{1}{x^3}$.

(Answer: 322)

Q18. A container holds 12 liters of 75% grape juice. Sarah drinks 4 liters of the mixture, then adds 4 liters of water. What is the new percentage of grape juice?
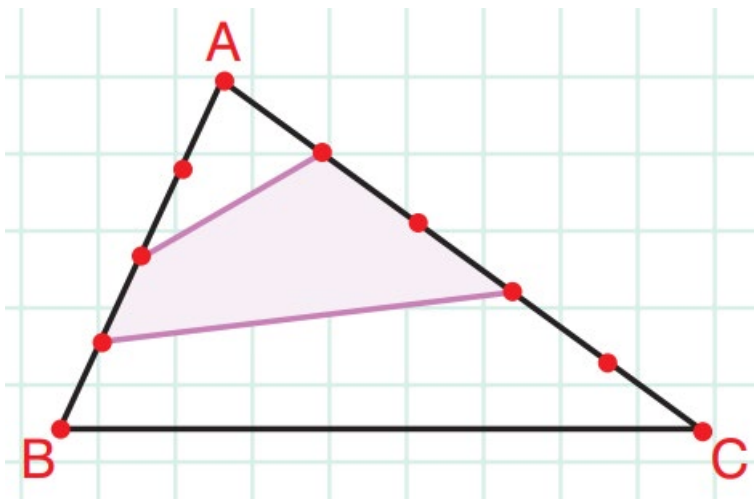
(Answer: 50%)

Q19. Solve system of equation.

$$\begin{cases} \dfrac{2x - 3y - 10}{x} = -2 \\ \dfrac{-6y + 3y + 6}{y} = 2 \end{cases}$$

(Answer: $(\frac{4}{7}; \frac{-18}{7})$)

Q20. In the figure, [AB] is divided into four equal parts, [AC] is divided into five equal parts, and $A(ABC) = 80$ cm². Find the area of the shaded part of the figure.

(Answer: 28 cm²)