



CROWN MATH COMPETITION

Grade 6 CROWN Math Competition

Multiple Choice & Free Response

1. What is the prime factorization of 100?
 - a) $2 \times 2 \times 5 \times 5$
 - b) $2 \times 2 \times 2 \times 3 \times 5$
 - c) 4×25
 - d) $2 \times 2 \times 25$

2. What is 50% of 420?
 - a) 370
 - b) 470
 - c) 220
 - d) 210

3. What is the first prime number greater than 32?
 - a) 33
 - b) 34
 - c) 37
 - d) 39

4. What is the best approximation of $\sqrt{1020}$?
 - a) 30
 - b) 33
 - c) 41
 - d) 51

5. It takes 10 days for 5 workers to build a wall. How many day(s) will it take for 2 workers to build the same wall?

write your answer in the answer sheet

6. What number comes next in the sequence: 2, 6, 12, 20, 30,?

write your answer in the answer sheet

7. If $20 - 3(4 - x) = 12$, what is the value of x ?

- a) $\frac{4}{3}$
- b) $\frac{8}{3}$
- c) $\frac{12}{17}$
- d) 0

8. Find the value of

$$\cfrac{4}{5 - \cfrac{6}{7 + \cfrac{8}{1 - \cfrac{2}{3}}}}$$

- a) $\frac{4}{149}$
- b) $\frac{149}{31}$
- c) $\frac{124}{149}$
- d) $\frac{4}{31}$

9. What is the next number in the pattern: 100, 50, 25, 12.5 , _?

- a) 2.5
- b) 6.25
- c) 1.25
- d) 1.5

10. In a farm, there are ducks and goats. The number of ducks is 15 more than the number of goats. There are 210 legs in total. How many goat(s) is / are there?

write your answer in the answer sheet

11. A toy store has a crate of toy cars. On the first day, they sell half of the total and 5 cars more. On the second day, they sell half the remaining cars but 3 cars fewer. After these sales, 14 cars are left. How many toy car(s) was / were originally in the crate?

write your answer in the answer sheet

12. What is the area of a triangle with a base of 8.25 units and a height of 100 units?

- a) 825 square units
- b) 8250 square units
- c) 412.5 square units
- d) 206.25 square units

13. How many sides does a regular Heptagon have?

- a) 6
- b) 7
- c) 8
- d) 9

14. What is the volume of a rectangular prism with length $\frac{5}{7}$ units, width $3\frac{1}{10}$ units, and height $\frac{1}{7}$ units?

- a) $\frac{31}{98}$ cubic units
- b) $\frac{155}{140}$ cubic units
- c) $\frac{31}{140}$ cubic units
- d) $\frac{31}{28}$ cubic units

15. What is the area of a circle with diameter 20 units? (Use $\pi \approx 3.14$)

- a) 125.6 square units
- b) 31.4 square units
- c) 1256 square units
- d) 314 square units

16. Find the value of $\frac{1}{729} + \frac{1}{243} + \frac{1}{81} + \dots + \frac{1}{9} + \frac{1}{3} + 1 + 3 + 9 + \dots + 729$.

write your answer in the answer sheet

17. Find the value of $45^2 - 5 \times 75$.

write your answer in the answer sheet

18. John's sister's age this year, after subtracting 8, is multiplied by 4, then plus 8, and divided by 6. The result is 18. How old is John's sister this year?

- a) 33
- b) 27
- c) 25
- d) 24

19. What is the value of 15% of 25% of 200?

- a) 75
- b) 15
- c) 12.5
- d) 7.5

20. Define the operation symbol, $a \otimes b = 3 \times a \times b - (a+1) \times (b-1)$ find the value of $5 \otimes (3 \otimes 6)$?

write your answer in the answer sheet

21. How many ways can you arrange the letters in the word "BOOT"?

- a) 12
- b) 24
- c) 30
- d) 36

22. How many ways can you choose 2 objects from a set of 6?

- a) 8
- b) 15
- c) 12
- d) 30

23. How many different outfits can you make with 4 shirts and 5 pants?

- a) 9
- b) 10
- c) 12
- d) 20

24. How many ways can you arrange the digits 1, 2, 3 and 4?

- a) 4
- b) 6
- c) 12
- d) 24

25. A square is formed by 144 rectangles, each $4\text{ cm} \times 9\text{ cm}$. Find the difference between the perimeter of the square and the total perimeter of 144 rectangles.

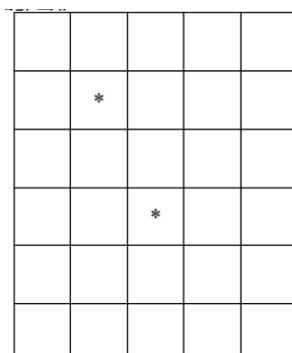
- a) 5184 cm
- b) 3744 cm
- c) 3456 cm
- d) 1296 cm

26. What is the sum of the **prime** factors of 50?

- a) 93
- b) 47
- c) 12
- d) 7

27. How many rectangle(s) with 2 “*” is / are there in the figure below?

- a) 24
- b) 48
- c) 50
- d) 52



28. What is the perimeter of a right triangle with the shorter sides of length 6, 8 units?

- a) 24 units
- b) 14 units
- c) 22 units
- d) 20 units

29. What is the area of a circle with a diameter of 20 units? (Use $\pi \approx 3.14$)

- a) 1256 square units
- b) 62.8 square units
- c) 31.4 square units
- d) 314 square units

30. If a car travels 80 miles per hour, how long will it take to travel 200 miles?

- a) 3 hours 50 minutes
- b) 3 hours 30 minutes
- c) 3 hours
- d) 2 hours 30 minutes