

SA Mathematics Challenge 2015

GRADE 6 FINAL ROUND

29 July 2015

NOTE:

- Answer the questions according to the instructions on the answer sheet.
- You may use a calculator.
- The questions test insight. Complex calculations will therefore not be necessary.
- We hope you enjoy it!

1. $20 - 19 + 18 - 17 + 16 - 15 + \dots + 6 - 5 + 4 - 3 + 2 - 1 = ?$

- (A) 6 (B) 7 (C) 8 (D) 10 (E) 0

2. The sum of the ages of Robert and Ethan is 49. What will the sum of their ages be in 4 years?

- (A) 51 (B) 53 (C) 57 (D) 98 (E) Not enough information

3. What is the missing fraction in this pattern?

$$\frac{3}{2}; \frac{5}{4}; \text{---}; \frac{9}{16}; \frac{11}{32}; \frac{13}{64}; \frac{15}{128}; \dots$$

- (A) $\frac{7}{6}$ (B) $\frac{8}{6}$ (C) $\frac{7}{10}$ (D) $\frac{8}{15}$ (E) $\frac{7}{8}$

4. What speed is indicated on this speedometer?



- (A) 103 mph (B) 116 mph (C) 110 mph (D) 119,5 mph (E) 119 mph



5. There are 2 500 eggs that need to be packed in egg boxes. Each box can hold 24 eggs. If all but the final box is full, how many eggs are in the final box?

(A) 1 (B) 2 (C) 4 (D) 16 (E) 23

6. Which fraction is exactly halfway between $\frac{1}{16}$ and $\frac{3}{8}$?

(A) $\frac{3}{16}$ (B) $\frac{7}{32}$ (C) $\frac{1}{6}$ (D) $\frac{2}{24}$ (E) $\frac{5}{16}$

7. In this rectangle, the midpoints of two opposite sides are connected to opposite vertices. What fraction of the rectangle is not shaded?




(A) $\frac{3}{4}$ (B) $\frac{1}{2}$ (C) $\frac{1}{4}$ (D) $\frac{1}{3}$ (E) $\frac{2}{3}$

8. A man walks from A to B. The distance between the halfway mark and the three quarter mark is 100 m. What is the total distance of his walk?

(A) 200 m (B) 300 m (C) 400 m (D) 500 m (E) 800 m

9. Two till slips from the same shop are shown below. Unfortunately, some of the Fanta Drinks spilt on the slips. What is the missing Total on the second slip?

2 Chocolate Bars	R22,00
3 Fanta Drinks	
TOTAL:	R50,50

5 Chocolate Bars	
3 Fanta Drinks	
TOTAL:	

(A) R55,00 (B) R28,50 (C) R75,50 (D) R82,00 (E) R83,50

10. Caitlyn read the last chapter of her favourite book. The chapter has 22 pages. On which page number does the chapter start if it ends on page number 179?

(A) 156 (B) 157 (C) 158 (D) 159 (E) 201

11. Steven has 4 different shirts, 3 different shorts and 2 different pairs of shoes. If an outfit consists of a shirt, shorts and a pair of shoes, how many different outfits are possible?

(A) 3 (B) 7 (C) 9 (D) 24 (E) 12

12. Five children stand next to each other in a line. Adam has four children to his right and Eric has four to his left. Cheryl is between Adam and Dave. Barbie does not stand next to Cheryl. Who stands in the middle?

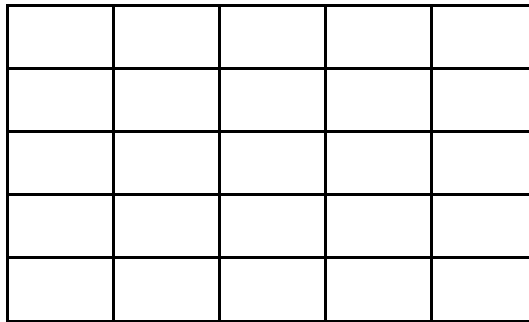
(A) Adam (B) Barbie (C) Cheryl (D) Dave (E) Eric

13. If you may use any number of brackets and place them anywhere in the expression below, what is the maximum value that can be obtained?

$$7 + 3 \times 12 + 3 \times 5 + 7 - 1$$

(A) 64 (B) 141 (C) 756 (D) 1799 (E) 1999

14. This rectangular wire grid consists of identical rectangles, each 10 cm by 5 cm. What length of wire is used to make the grid?



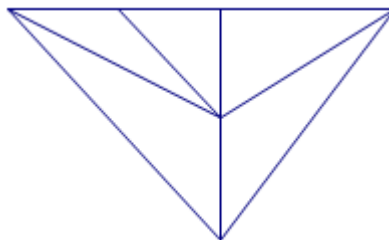
(A) 365 cm (B) 1000 cm (C) 300 cm (D) 600 cm (E) 450 cm

15. In a coin tossing game, Thandi gets 5 sweets if the coin falls on a head and loses 2 sweets if the coin falls on a tail. At some stage Thandi had 9 sweets. After tossing the coin another 6 times, she has 11 sweets. How many tails did she get in these last 6 tosses?



(A) 4 (B) 3 (C) 2 (D) 1 (E) 0

16. How many different triangles are there in this figure?



(A) 5 (B) 6 (C) 8 (D) 10 (E) 11

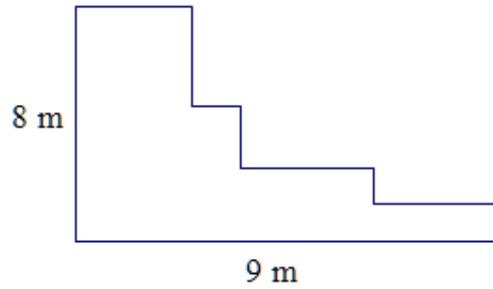
17. Form all possible 4-digit numbers consisting of the four digits 1, 2, 3 and 4, each used only once in a number. How many of these 4-digit numbers are divisible by 4?

(A) 2 (B) 4 (C) 6 (D) 8 (E) 10

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18. Two lists of consecutive natural numbers start with the same number in position 1. One list has one more number than the other. If the sum of the numbers in one list is 250 and the sum of the numbers in the other list is 303, what is the number in position 1?

(A) 48 (B) 50 (C) 51 (D) 52 (E) 53

19. What is the perimeter of this figure (the distance around the figure)?
Note: All angles are right angles.



(A) 72 m (B) 34 m (C) 17 m (D) 30 m (E) Not enough information

20. What is the missing number in this table?

42	7	5	30
21	3		63
12	4	12	36
8	1	9	72

(A) 9 (B) 17 (C) 42 (D) 6 (E) 18
