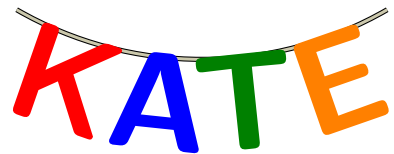**1.** Which one of these numbers is closest to 208?

(A) 190   (B) 200   (C) 205   (D) 210   (E) 218

2. Callie has $47 and then gets $25 for her birthday. How much does she have now?

(A) $52   (B) $62   (C) $65   (D) $69   (E) $72

3. Which one of the following numbers is a multiple of 8?

(A) 18   (B) 28   (C) 38   (D) 48   (E) 58

4. Kate made this necklace from alphabet beads.

She put it on the wrong way around, showing the back of the beads. What does this look like?

(A)   (B)   (C)

(D)   (E)

5. Write the number for eight thousand, eight hundred and eight.

(A) 88008   (B) 80808   (C) 80088   (D) 888   (E) 8808

6. Jane has a number of 20c coins and Tariq has a number of 50c coins. They have the same amount of money. What is the smallest number of coins they could have all together?

(A) 2   (B) 5   (C) 6   (D) 7   (E) 10

7. Mrs Chapman put 58 books back on the library shelves. She put 12 books on each shelf except the last shelf. How many books did she put on the last shelf?

(A) 7   (B) 8   (C) 9   (D) 10   (E) 11

8. A shopkeeper displays plastic cups like this. Each level has one less than the level below it, and the top level has only one cup.

She keeps this pattern going until she has 28 cups. How many levels is this?

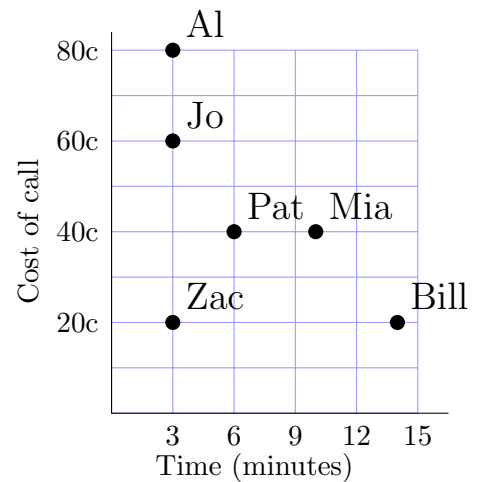(A) 5   (B) 6   (C) 7   (D) 8   (E) 9
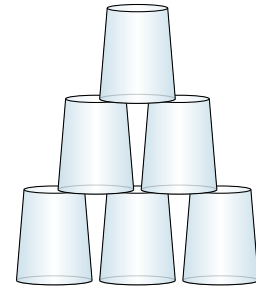
9. Six friends each make a phone call to another city.

The cost of each call depends on the time taken for the call as well as the distance.

From this diagram decide whose phone call lasts longer than Pat's, but costs less.

(A) Al   (B) Bill   (C) Jo

       (D) Mia   (E) Zac

10. Aimee, Bilal and Caitlin are comparing their ages. Aimee is 8 years old. In three years time, Bilal will be 9. Two years ago, Caitlin was 5. Ordered from youngest to oldest, they are

(A) Aimee, Bilal, Caitlin   (B) Bilal, Caitlin, Aimee

(C) Caitlin, Aimee, Bilal   (D) Bilal, Aimee, Caitlin
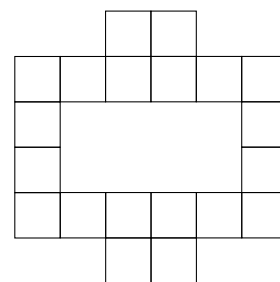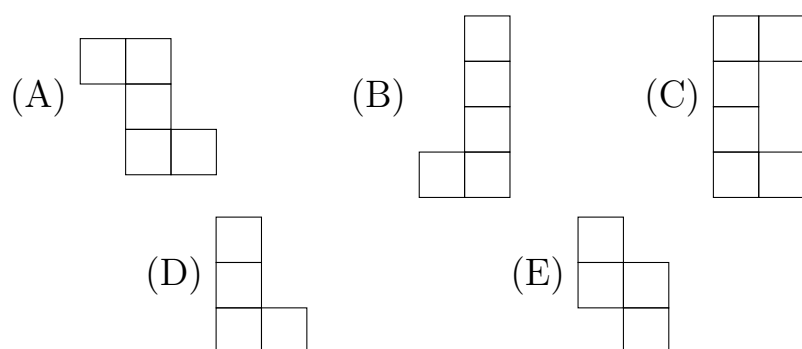
           (E) Aimee, Caitlin, Bilal

Questions 11 to 20, 4 marks each

11. What value is indicated on this popularity meter?

(A) 36.65   (B) 37.15   (C) 37.3

     (D) 37.65   (E) 38.65
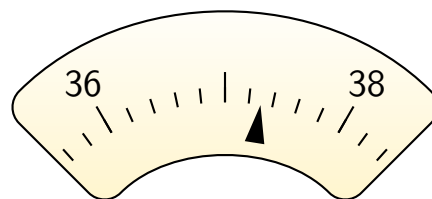
12. One of these shapes made of squares has been flipped and turned to make the following pattern, without any overlaps. Which one?

(A)   (B)   (C)

    (D)   (E)

13. Fred looked at the clock during the Library lesson.

Which one of these times could the clock have shown?

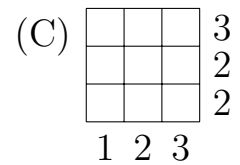| Friday timetable	
9.00 am	English
10.00 am	Mathematics
11.00 am	Recess
11.30 am	Library
12.30 pm	Assembly
1.00 pm	Lunch
2.00 pm	Sport

(A)   (B)   (C)
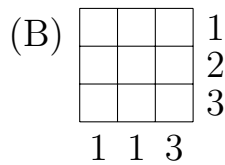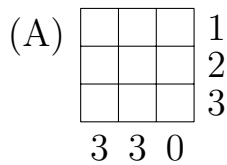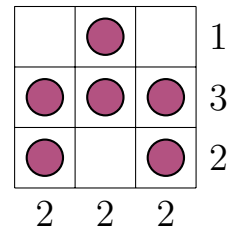
    (D)   (E)
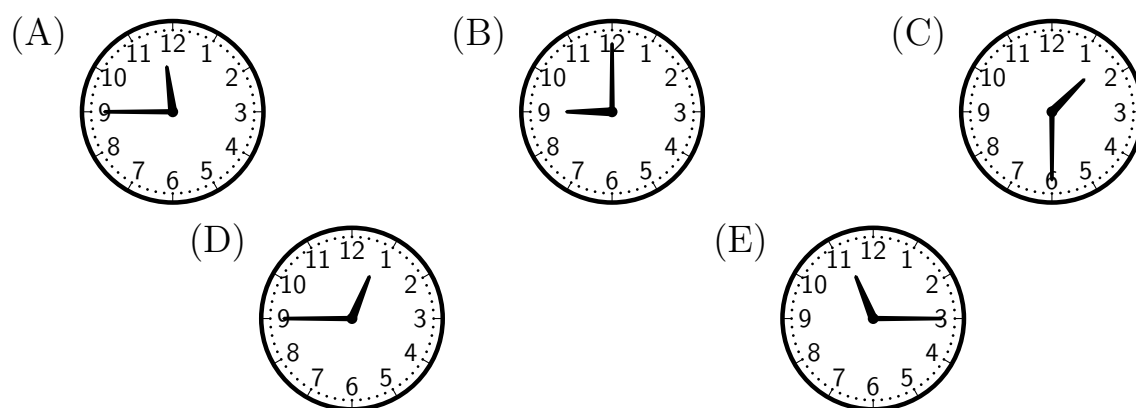
14. Last year Alan worked 5 days a week for 48 weeks. The graph shows how Alan travelled to work each day. On how many days did Alan travel by bus?

(A) 20   (B) 80   (C) 100

     (D) 140   (E) 240
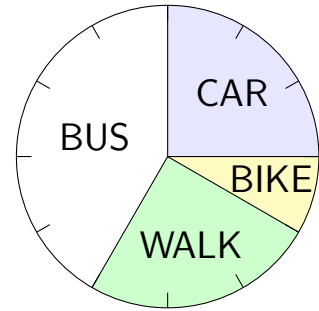
15. In this grid, each number at the end of a row or below a column indicates how many squares in that row or column contain a counter.

Which one of the following grids could also have counters with these rules?

(A)
```
        1
        2
        3
 3 3 0
```

(B)
```
        1
        2
        3
 1 1 3
```

(C)
```
        3
        2
        2
 1 2 3
```

(D)
```
        3
        3
        2
 3 1 3
```

(E)
```
        3
        2
        1
 1 2 3
```
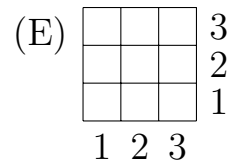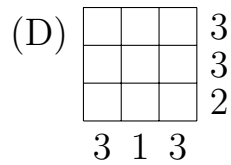
16. To send large parcels overseas, it costs $24 for the first 10 kg and $8 for each extra 5 kg or part thereof. How much would it cost to send a 28 kg parcel overseas?

(A) $48   (B) $52   (C) $56   (D) $60   (E) $64

17. The numbers from 1 to 3 are entered into the circles in the grid shown. Two circles joined by a line may not contain the same number.
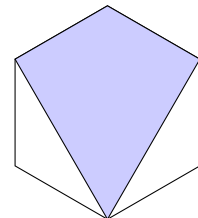
There are several ways of doing this. What is the smallest possible total of the eight numbers?

(A) 10   (B) 12   (C) 14

     (D) 15   (E) 16
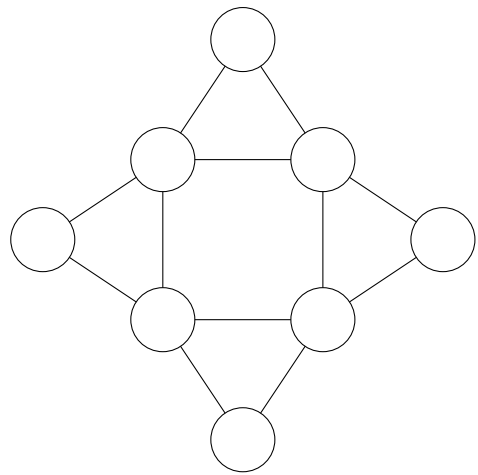
18. What fraction of this regular hexagon is shaded?

(A) $\dfrac{1}{2}$ (B) $\dfrac{2}{3}$ (C) $\dfrac{3}{4}$ (D) $\dfrac{3}{5}$ (E) $\dfrac{4}{5}$

19. Pictures of fruit have been placed in this grid to represent numbers less than 10.

The totals for each row and column are shown.

What is the total value of an apple 🍎 and an orange 🍊 ?

(A) 8   (B) 9   (C) 10

     (D) 11   (E) 12

20. Andrew is doing some tidying. He can tidy 2 big rooms in the same time it takes to tidy 3 small rooms. He can tidy one big room and three small rooms in 90 minutes.

How long will it take him to tidy 3 big rooms and 6 small rooms?

(A) 3.5 hours   (B) 4 hours   (C) 4.5 hours   (D) 5 hours   (E) 5.5 hours

Questions 21 to 25, 5 marks each

21. A rectangle measures 3 cm by 4 cm. A diagonal stripe is shaded which starts 1 cm from the diagonal corners, as in the diagram.

What fraction of the area of the rectangle is this shaded strip?

(A) $\dfrac{1}{2}$ (B) $\dfrac{1}{3}$ (C) $\dfrac{1}{4}$

     (D) $\dfrac{1}{5}$ (E) $\dfrac{2}{5}$
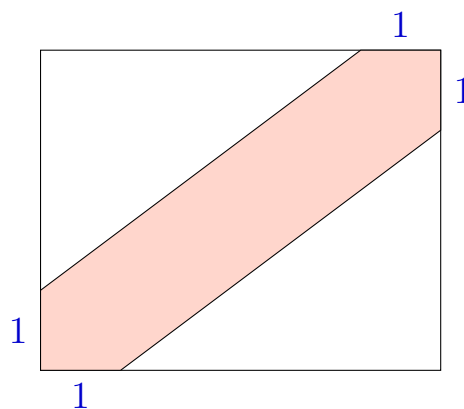
22. Beginning with a row of 20 coins, Anh takes the first coin, then every fourth coin after that.

From the remaining coins, Brenda takes the first coin and every third coin after that.

From the remaining coins, Chen takes the first coin and every second coin after that.

Dimitris takes all the remaining coins.

Does anyone get more coins than all the others?

(A) Yes, Anh does   (B) Yes, Brenda does

(C) Yes, Chen does   (D) Yes, Dimitris does

(E) No, they all get the same number of coins

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23. These two water tanks are to be filled. A hose used to do this can fill the smaller tank in 2 hours. How many hours will the same hose take to fill the larger tank?

3 m, 5 m, 4 m

6 m, 12 m, 10 m
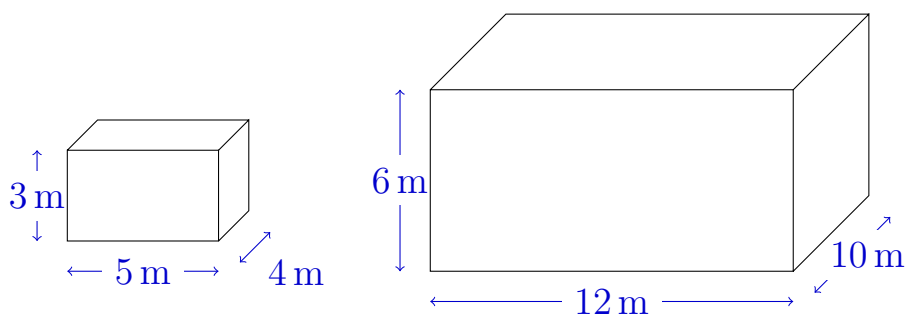
(A) 4   (B) 6   (C) 9   (D) 12   (E) 24

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24. A farmer has a rectangular property 8 km by 6 km, with fencing along the boundary and diagonal fences as shown. One day she leaves her farmhouse at H to inspect all her fences, returning home to H when this is done.

What is the minimum distance, in kilometres, she must travel to do this?

H — 8 — O, 6, 5, 5, 6, 5, 5, 8, E, M
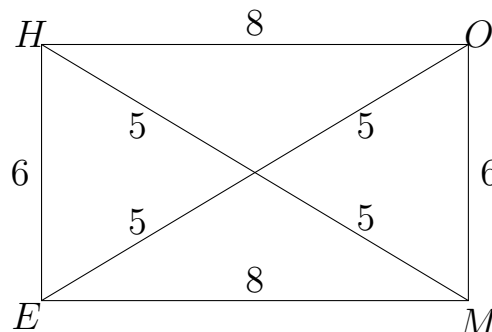
(A) 48   (B) 58   (C) 59   (D) 60   (E) 64

25. What is the sum of the digits in the result of the subtraction

$$\underbrace{111\ldots111}_{20\text{ digits}} - \underbrace{222\ldots222}_{10\text{ digits}}$$

where the first number has 20 digits each 1, and the second has 10 digits, each 2?

(A) 72   (B) 81   (C) 89   (D) 90   (E) 99

For questions 26 to 30, shade the answer as a whole number from 0 to 999 in the space provided on the answer sheet.

Questions 26–30 are worth 6, 7, 8, 9 and 10 marks, respectively.

26. In the algorithm below, the letters a, b and c represent different digits from 0 to 9.

What is the three-digit number abc?

$$
\begin{array}{rccccc}
 & & & & & a \\
 & & & & a & b \\
 & & & a & b & c \\
+ & & 1 & 0 & 0 & 0 \\
\hline
 & & 2 & 0 & 1 & 8 \\
\end{array}
$$

27. Using only digits 0, 1 and 2, this cube has a different number on each face.

Numbers on each pair of opposite faces add to the same 3-digit total.

What is the largest that this total could be?

28. I wrote the counting numbers joined together:

$$123456789101112131415 1617\ldots$$

Which of the counting numbers was I writing when the 100th zero was written?

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29. Jan and Jill are both on a circular track.

Jill runs at a steady pace, completing each circuit in 72 seconds.

Jan walks at a steady pace in the opposite direction and meets Jill every 56 seconds.

How long does it take Jan to walk each circuit?

---

30. The answer to a cross-number puzzle clue is a whole number (not a word).

A fragment of such a puzzle is shown. Some clues are:

Across
1. Square of 27-down.
6. Half of 1-across.

Down
1. Twice 2-down.
2. A multiple of 9.

What is 2-down?