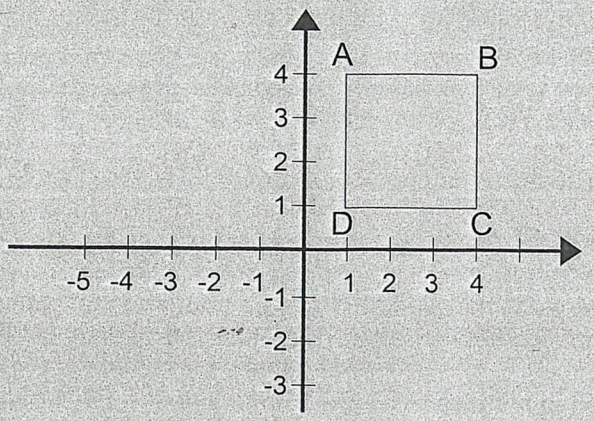
32. What are the coordinates of the image of vertex B, if square ABCD is moved (translation) 5 units down, 6 units to the left, 5 units up, and finally 6 units to the right?

A) (4, 4) B) (5 , 4)
C) (4 , 5) D) (3 , 5)
E) (6 , 4)



33. Find the smallest natural number which is a multiple of 3, 4, and 5. When this number is multiplied by the fraction 2/3, the result is

A) 15 B) 30 C) 40
D) 25 E) 20

34. How many of the following polygons: triangle, rectangle, square, and trapezium have two diagonals that are always equal?

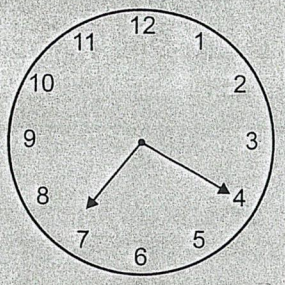
A) 3 B) 1 C) 0 D) 2 E) 4

35. If $33^2 = 1\,089$, $333^2 = 110\,889$, and $3\,333^2 = 11\,108\,889$, then $33\,333^2 = ?$

A) 111 998 889 B) 111 108 889 C) 111 088 999
D) 111 099 088 E) 1 111 088 889

36. Which of the following answers is not a prime number?

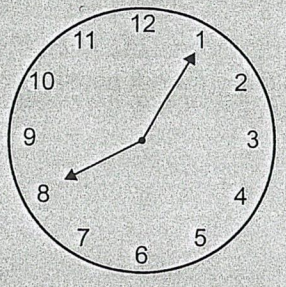
A) 3 B) 5 C) 9
D) 11 E) 7



37. The factors of 6 are {1, 2, 3, 6}. The factors of 20 are {1, 2, 4, 5, 10, 20}. How many factors does 100 have?

A) 6 B) 7 C) 8
D) 9 E) 5

38. The first clock in the diagram shows the time at which Mathusalem started his breakfast. The second clock shows the time when Mathusalem finished his breakfast. How many degrees did the minute hand turn from the time Mathusalem started his breakfast and the time he finished?



A) 270° B) 150° C) 300°
D) 360° E) 240°

39. Which of the following is closest to the result of the sum shown in the diagram?

A) 6 B) 7 C) 9
D) 10 E) 8

$$4\frac{1}{2} + \frac{11}{12} + 2\frac{2}{3}$$

40. Mathilda has drawn a rectangle whose sides measure a whole number of centimetres. How many of the following: 11 cm, 12 cm, 13 cm, 14 cm, and 15 cm could represent the perimeter of this rectangle?

A) 1 B) 2 C) 3 D) 4 E) 5

41. The maximum number of points at which a circle and a triangle intersect is

A) 2 B) 3 C) 4 D) 5 E) 6

42. Mathew has worked 3/4 of an hour and Mathilda 5/6 of an hour. The number of minutes that one has worked more than the other is equal to

A) 5 minutes B) 10 minutes C) 4 minutes D) 6 minutes E) 8 minutes

43. Three series (S_1, S_2, and S_3) are represented in the diagram below. Which of the suggested answers is false?

$$S_1 = 2 + 4 + 6 + 8 + \ldots + 100$$
$$S_2 = 1 + 3 + 5 + 7 + \ldots + 99$$
$$S_3 = 3 + 5 + 7 + 9 + \ldots + 101$$

A) $S_1 > S_2$ B) $S_3 > S_2$ C) $S_1 - S_2 = 100$ D) $S_3 - S_2 = 100$ E) $S_3 - S_1 = 50$

44. I am a number smaller than 50. One of my factors is 3. I am an even number and a multiple of 7. What number am I?

A) 21 B) 28 C) 48 D) 42 E) 46

45. If 20% of a number is equal to 30 and 30% of a second number is equal to 12, which of the following represents the difference between the two numbers?

A) 122 B) 110 C) 114 D) 98 E) 100

46. Mathusalem must replace each square in the diagram below by one of the 4 operations (+, -, x, ÷), so as to get the greatest possible result. What will this result be if he cannot use the same operation twice?

$$\frac{1}{2} \square \frac{1}{3} \square \frac{1}{4}$$

A) 5/24 B) 5/12 C) 7/4 D) 29/12 E) 11/6

47. The sum of all the prime factors of 42 is

A) 11 B) 12 C) 13 D) 14 E) 15

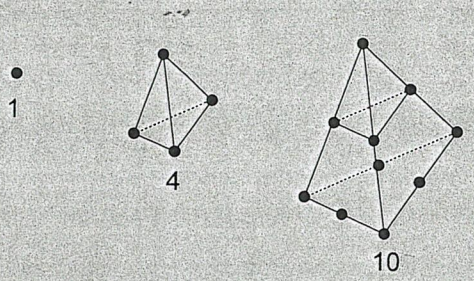
48. The triangle of numbers shown on the right is called Pascal's triangle. Carefully study the structure of its first 6 lines, then find the sum of the numbers that make up its seventh line.

A) 66 B) 60 C) 64
D) 65 E) 61

1
1 1
1 2 1
1 3 3 1
1 4 6 4 1
1 5 10 10 5 1

49. Look carefully at the diagram. The first three terms (1, 4, and 10) in the sequence of tetrahedral numbers are shown. What is the next term in this infinite sequence?

A) 22 B) 23
C) 24 D) 20
E) 21



50. Mathusalem has enough food in stock so that his 44 pigs can survive for 35 days. Assuming that all of his pigs eat the same amount of food, how many pigs should he sell so that the pigs that are left have enough food to survive for 55 days?

A) 16 B) 28 C) 21 D) 18 E) 14

MATHEMATICA

FEUILLE DE RÉPONSES - RESPONSE FORM

PLEASE PRINT - EN LETTRES MOULÉES S.V.P.

SCHOOL NAME (IN FULL) - NOM DE L'ÉCOLE (AU COMPLET)

SIGNATURE

YEAR/AN	MONTH/MOIS	DAY/JOUR

DATE OF BIRTH / DATE DE NAISSANCE

CITY/TOWN-VILLE

PROVINCE

NOM DE FAMILLE - LAST NAME

PRÉNOM - FIRST NAME

DIRECTIVES IMPORTANTES

1- UTILISER UN CRAYON HB POUR BIEN CODER CETTE FEUILLE.
2- NOIRCIR COMPLÈTEMENT LES CERCLES APPROPRIÉS.
3- NE PAS UTILISER UN STYLO-BILLE OU UN STYLO-FEUTRE.
4- VÉRIFIER LA PRÉCISION DE TOUS LES CERCLES NOIRCIS ET BIEN EFFACER LES ERREURS.
5- VOIR PLUS BAS POUR CODER CORRECTEMENT.

IMPORTANT INSTRUCTIONS

1- USE AN HB PENCIL FOR CODING THIS FORM.
2- BLACKEN COMPLETELY THE APPROPRIATE CIRCLES.
3- DO NOT USE A BALL-POINT PEN OR FELT-TIP MARKER.
4- CHECK THE BLACKENED CIRCLES FOR ACCURACY AND ERASE ERRORS COMPLETELY.
5- SEE BELOW FOR CORRECT CODING.

CORRECT	INCORRECT
1 ● B C D E	1 Ⓐ B C D E
2 A B ● D E	2 A B Ⓧ D E
3 A B C D ●	3 A B C D Ⓔ

DO NOT FOLD THIS SHEET - NE PAS PLIER CETTE FEUILLE

1	A B C D E	11	A B C D E	21	A B C D E	31	A B C D E	41	A B C D E
2	A B C D E	12	A B C D E	22	A B C D E	32	A B C D E	42	A B C D E
3	A B C D E	13	A B C D E	23	A B C D E	33	A B C D E	43	A B C D E
4	A B C D E	14	A B C D E	24	A B C D E	34	A B C D E	44	A B C D E
5	A B C D E	15	A B C D E	25	A B C D E	35	A B C D E	45	A B C D E
6	A B C D E	16	A B C D E	26	A B C D E	36	A B C D E	46	A B C D E
7	A B C D E	17	A B C D E	27	A B C D E	37	A B C D E	47	A B C D E
8	A B C D E	18	A B C D E	28	A B C D E	38	A B C D E	48	A B C D E
9	A B C D E	19	A B C D E	29	A B C D E	39	A B C D E	49	A B C D E
10	A B C D E	20	A B C D E	30	A B C D E	40	A B C D E	50	A B C D E