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P-TQE 2025

Pinnacle Talent Quest Exam

For 6th to 10th Class Students

STAGE - 1 & STAGE - 2

Pinnacle Talent Quest Exam

SAMPLE TEST PAPER

Class 10th



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 JEE ADV 2024 **958** AIR
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 VIRAJ MANOCHA

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JEE MAINS & ADVANCE RESULT 2023

JEE ADV AIR* **147**
 JEE ADV AIR* **172**
 JEE ADV AIR* **230**

99.84 Percentile **IIT DELHI** Mayank Jindal
99.86 Percentile **IIT BOMBAY** Dikshit Singla
99.90 Percentile **IIT ROORKEE** Krish Jindal

JEE ADV AIR 1946 99.88 %ile IIT ROORKEE Charanpreet Jindal	JEE ADV AIR 3834 99.51 %ile IIT RAJKEH Sudhanshu Singh	JEE ADV AIR 4079 99.46 %ile IIT HYDRABAD Manish Deyal	JEE ADV AIR 6008 99.44 %ile IIT DELHI Disha	JEE ADV AIR 7845 99.85 %ile IIT DELHI Pragya	JEE ADV AIR 3353 99.75 %ile NIT DELHI Meharaj Kaur
99.59 %ile IIT ALLAHABAD Garima	99.66 %ile DTU DELHI Chhavi Kaur	99.61 %ile DTU DELHI Jaskin Bansal	99.34 %ile DTU DELHI Harshvanshu Jindal	98.81 %ile PEC CHD Chakrit	99.45 %ile NIT JALANDHAR Yog Garg
97.96 %ile PEC CHD Lakshita Garg	97.11 %ile NIT JALANDHAR Himanshi Singh	IIT ROPAR Kishu Arora	IIT BHU Bhishm Jindal		

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NEET RESULT

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			631/720 Somndeep Kaur AJMS-Guchinda	

What Makes Pinnacle Unique?

1 Best Faculty Team

2 Hi-Tech Classrooms

3 Customized Study material

4 Personal Attention

5 Unlimited Doubt Sessions

6 Best Testing Methodology



Lecture
Recording
Lab



Revision
Classes &
Self Study
Zones



Online Testing
Lab (CBT)



Smart & AC
Classrooms



Objective +
Subjective



Student
Performance
and
Analysis Report



Rich Library &
Researched
Study
Modules



Extra Support
to weaker
students



CCTV
Campus



Biometric
Attendance

Classroom Program

1 Comprehensive Classroom Lectures

All classes at Pinnacle are conducted by highly qualified and experienced faculty members, mostly IITians. Each chapter is started at the grass root level and is dealt to an extent which is the requirement of competitive examinations, with an aim of enabling the students to develop a comprehensive view of the whole chapter with a thorough understanding.



Doubt Clearance 2

"If you ask a question, you may appear fool for some time, but if you don't, you'll remain a fool for whole life." System at Pinnacle encourages all students to ask their doubts and questions.

3 Regular Tests Online and Offline

As JEE Mains and Advanced have gone completely online and NEET is in the pipeline, we have launched a dedicated online testing platform where students can practise over CBT (Computer Based Tests). The combination of online and offline testing modes based on latest JEE/NEET patterns ensure that students are at par with the recent changes. Students can check their test reports and performance analysis via a unique online login ID. Their results are also communicated to parents via SMS.

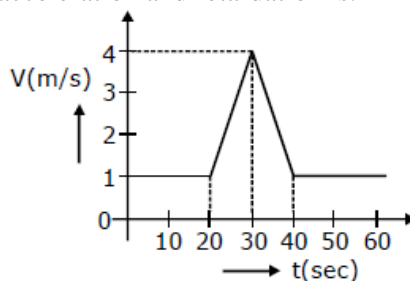


Addressing the Board Exam 4

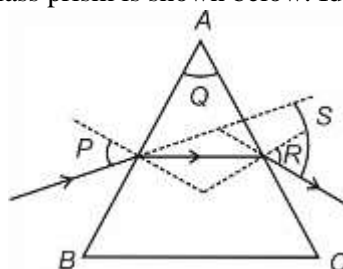
Pinnacle has a very distinct methodology for preparing the students for competitive examinations while in full synchronization with Board Exams as well. Board level tests are conducted alongside the regular JEE/NEET tests and the copies are graded at very meticulous level by teachers. Students receive methodological tips so as to perform excellent in the board Exams as well.

Section - A Science

- An object of height 4 cm is placed at a distance of 15 cm in front of a concave lens of power, - 10 diopters. Find the size of the image:
 - 1.6 cm
 - 1.2 cm
 - 1.4 cm
 - 0.8 cm
- The far point of a myopic person is 25 cm in front of the eye. The nature and power of the lens required to correct the problem, will be:
 - Convex lens, - 4 D
 - Concave lens, - 4 D
 - Concave lens, + 4 D
 - Convex lens, + 4 D
- Velocity – time (v – t) graph for a moving object is shown in figure. Total displacement of the object during the time interval when there is non – zero acceleration and retardation is:

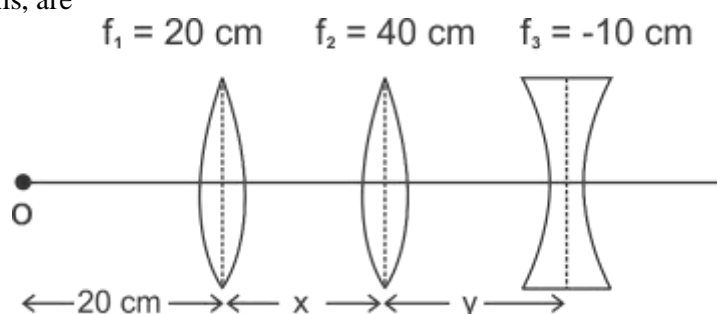


- 60 m
 - 50 m
 - 30 m
 - 40 m
- A particle moves on a rough horizontal ground with some initial velocity v_0 . If $\left(\frac{3}{4}\right)^{\text{th}}$ of its kinetic energy is lost due to friction in time t_0 then coefficient of friction between the particle and the ground is:
 - $\frac{v_0}{2gt_0}$
 - $\frac{v_0}{4gt_0}$
 - $\frac{3v_0}{4gt_0}$
 - $\frac{v_0}{gt_0}$
 - The refraction of a white light through a glass prism is shown below. Identify the angles P, Q, R, S.

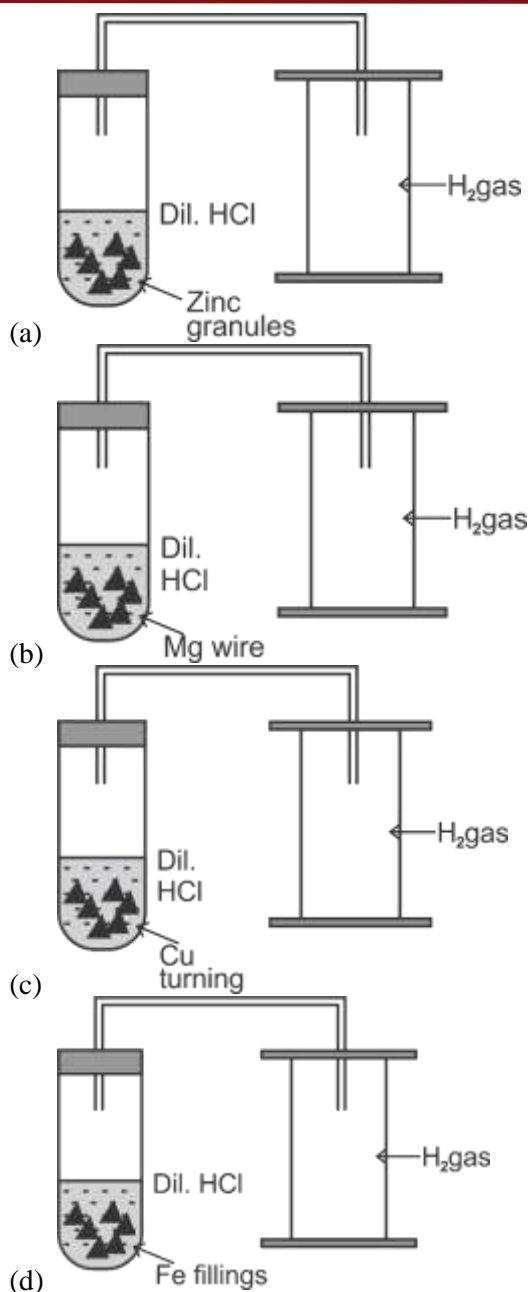


	P	Q	R	S
1.	Angle of incidence	Angle of prism	Angle of deviation	Angle of emergence
2.	Angle of emergence	Angle of prism	Angle of incidence	Angle of deviation
3.	Angle of incidence	Angle of deviation	Angle of prism	Angle of emergence
4.	Angle of incidence	Angle of prism	Angle of emergence	Angle of deviation

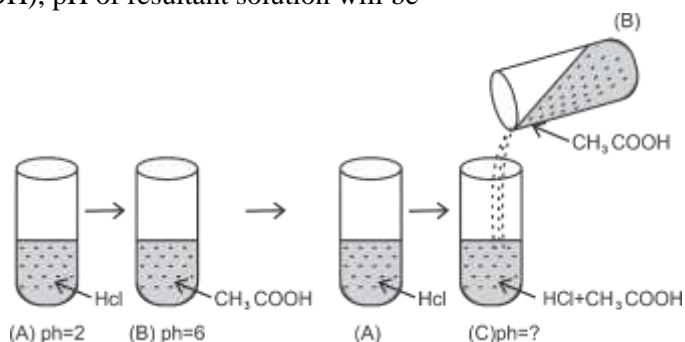
- (a) 1
 (b) 2
 (c) 3
 (d) 4
6. Two convex lenses of focal lengths 20 cm and 40 cm and a concave lens of focal length 10 cm are placed as shown below. An object is placed at a distance of 20 cm. The value of x and y , for which final rays comes out parallel to the principal axis, are



- (a) $x = 20 \text{ cm}$, $y = 40 \text{ cm}$
 (b) $x = 20 \text{ cm}$, $y = 30 \text{ cm}$
 (c) $x = 15 \text{ cm}$, $y = 30 \text{ cm}$
 (d) $x = 30 \text{ cm}$, $y = 20 \text{ cm}$
7. A car covers first half part of its journey with a velocity v_1 and the remaining part of the distance was covered in time t . The remaining distance was covered with velocity v_2 for $\frac{1}{3}$ rd of time t and with velocity v_3 for the next $\frac{2}{3}$ rd of time t . then
- (a) The average velocity of car of whole journey is $\frac{2v_1(v_2 + 2v_3)}{3v_1 + v_2 + 2v_3}$
 (b) The average velocity of car of whole journey is $\frac{v_1(v_2 + v_3)}{3v_1 + v_2 + v_3}$
 (c) The ratio of time taken by car in first half distance to time taken by car in next half distance is $\frac{v_2 + 2v_3}{3v_1}$
 (d) The ratio of time taken by car in first distance to time taken by car in next half distance is $\frac{2v_1 + v_2}{3v_3}$
8. An object of height 2 cm is kept at a distance of 20 cm in front of a concave mirror and its virtual erect image is formed 60 cm behind the mirror. Calculate the size of the image.
9. The image of a candle flame formed by a lens is obtained on a screen placed on the other side of the lens. If the image is three times the size of the flame and the distance between the lens and image is 80 cm. Find the focal length of lens used in cm.
10. For how long should a force of 100 N act on a body of mass 20 kg so that it acquires a velocity of 100 m/s?
11. Four experimental set – up are shown below. A rapid evolution of H_2 gas will be observed in which setup.



12. If we have 2 test tubes (A & B) containing HCl and CH_3COOH . On mixing both acids, which are having pH = 2 (HCl) and pH = 6 (CH_3COOH), pH of resultant solution will be



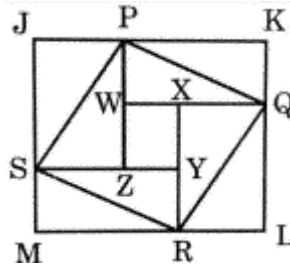
- (a) The pH will be less than 2
 (b) The pH will be more than 6
 (c) The pH will be between 2 to 6
 (d) The pH will be 7
13. Which of the following statement is true?
 (a) The total mass of the substance remains same in chemical change.
 (b) Chemical change is permanent and irreversible.

- (c) Physical change is temporary and reversible
(d) All of these
14. Which of the following statements is not correct?
(a) Acids turn blue litmus solution to red.
(b) Raw onion can be used as an olfactory indicator.
(c) Bases are sour in taste.
(d) Vanilla essence does not give odour in strongly basic solution.
15. The process of electrolysis is used for obtaining such metals which are
(a) Highly reactive
(b) Moderately reactive
(c) Highly unreactive
(d) All types of metals
16. 8g of O_2 has the same number of molecules as
(a) 7g CO
(b) 14g N_2
(c) 11g CO_2
(d) 16g SO_2
17. In the Thomson's model of atom, which of the following statements are correct?
(a) The mass of the atom is assumed to be uniformly distributed over the atom
(b) The positive charge is assumed to be uniformly distributed over the atom
(c) The electrons are uniformly distributed in the positively charged sphere
(d) The electrons attract each other to stabilise the atom
18. Bromine occurs in nature mainly in the form of two isotopes $^{79}_{35}\text{Br}$ and $^{81}_{35}\text{Br}$. If the abundance of $^{79}_{35}\text{Br}$ isotope is 49.7% and that of $^{81}_{35}\text{Br}$ isotope is 50.3%, calculate the average atomic mass of bromine.
19. If the mass of a molecule of water is $x \times 10^{-26}$. Find the value of x.
20. The composition of aqua – regia is x parts of conc. HCl and y parts of conc. HNO_3 . The value of x + y is
21. If in stomach hydrochloric acid is not produced which enzyme will not function?
(a) Ptyalin
(b) Trypsin
(c) Pepsin
(d) Chymotrypsin
22. The number of daughter cells formed at the end of meiosis from a cell _____.
(a) 2 haploid cells
(b) 4 haploid cells.
(c) 2 diploid cells
(d) 4 diploid cells.
23. Which is the living component of xylem?
(a) Tracheids
(b) Xylem fibre
(c) Xylem parenchyma
(d) Trachea
24. Which one of the following species of honeybee is an Italian species?
(a) *Apis dorsata*
(b) *Apis cerana indica*
(c) *Apis florea*
(d) *Apis mellifera*
25. Which one of the following nutrients is not available in fertilisers?
(a) Nitrogen
(b) Iron
(c) Phosphorus
(d) Potassium
26. It converts proteins into peptides?

- (a) Pancreatic juice
 - (b) Gastric juice
 - (c) Bile juice
 - (d) Saliva
27. Which of the following statement are correct?
- (a) Tapeworms are hermaphrodites and undergo self fertilisation.
 - (b) Earthworms are hermaphrodites and undergo self fertilisation.
 - (c) Tapeworms are hermaphrodites and but undergo self cross fertilisation
 - (d) Tapeworms are hermaphrodites and but undergo self fertilisation
28. How many ovules might have been fertilised to produce 50 seeds in a watermelon?
29. Number of male gametes in the growing pollen tube is
30. How many male gametes are essential to form 25 seeds in angiosperm plants?

Section - B Mathematics

31. Rhombus PQRS inscribed in rectangle JKLM, as shown. Segments PZ and XR are parallel to JM. Segments QW and YS are parallel to JK. If JP = 39 cm, JS = 52 cm, and KQ = 25 cm, what is the perimeter of rectangle WXYZ?



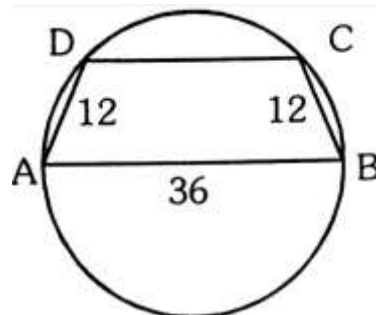
- (a) 48 cm
 (b) 58 cm
 (c) 84 cm
 (d) 96 cm
32. Two circles with radii 'a' and 'b' respectively, touch each other externally. Let 'c' be the radius of a circle that touches these two as well as a common tangent to the two circles. Which of the following is true?

- (a) $\frac{1}{\sqrt{a}} - \frac{1}{\sqrt{b}} = \frac{1}{\sqrt{c}}$
 (b) $\frac{1}{\sqrt{a}} - \frac{1}{\sqrt{b}} = -\frac{1}{\sqrt{c}}$
 (c) $\frac{1}{\sqrt{a}} + \frac{1}{\sqrt{b}} = \frac{1}{\sqrt{c}}$
 (d) $\sqrt{b} - \sqrt{a} = \frac{1}{\sqrt{c}}$

33. The least number of numbers to be deleted from the set $\{1, 2, 3, \dots, 13, 14, 15\}$ so that the product of the remaining numbers is a perfect square is

- (a) 1
 (b) 2
 (c) 3
 (d) 4

34. In the figure below, ABCD is a cyclic quadrilateral with AB the diameter of the inscribing circle. If AB = 36 and AD = BC = 12, what is the length of CD?



- (a) 28
 (b) 12
 (c) 18
 (d) 14
35. If 'a' is the arithmetic mean of $\sin^2\theta$ and $\cos^2\phi$ & 'b' is the arithmetic mean of $\cos^2\theta$ and $\sin^2\phi$ then 'b' equals:
- (a) $1 - a$
 (b) a
 (c) 1

(d) $1 + a$

36. Which of the following is true if three lines $px + qy + r = 0$, $qx + ry + p = 0$ and $rx + py + q = 0$ are concurrent?

(a) $p + q + r = 0$

(b) $p^2 + q^2 + r^2 = pq + qr + rp$

(c) $p^3 + q^3 + r^3 = 3pqr$

(d) $p^2 + q^2 - r^2 = 0$

37. S is a point on side PQ of ΔPQR such that $PS = QS = RS$. Which of the following is not correct?

(a) $QS^2 + RS^2 = QR^2$

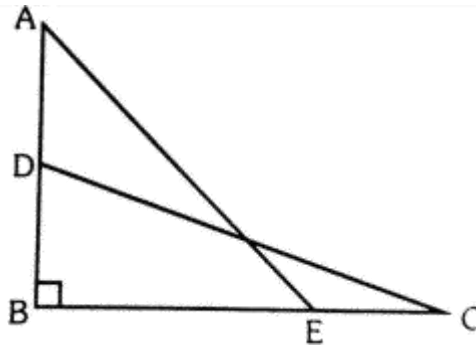
(b) $PS^2 + RS^2 = PR^2$

(c) $PR^2 + QR^2 = PQ^2$

(d) $PR \times QR = RS^2$

38. Given that $f(x)$ is a polynomial of degree 2012, and that $f(k) = \frac{2}{k}$ for $k = 1, 2, 3, \dots, 2013$, find the value of $2014 \times f(2014)$.

39. In the following diagram. $AB \perp BC$. D and E are points on segments AB and BC respectively, such that $BA + AE = BD + DC$. It is known that $AD = 2$, $BE = 3$ and $EC = 4$. Find $BA + AE$.



40. If $3 \sin \theta + 4 \cos \theta = 5$ then value of $4 \sin \theta - 3 \cos \theta$ is :

Section - C Mental Aptitude

Part-I: Logical Puzzle

Directions (Q.No. 41 to 45): Study the following information carefully and answer the questions given below:

J, K, L, M, N, P, Q and R are eight members of a group in a company. Four of them are engineers and rests are managers. All of them have a different car, viz. Indica, Innova, Alto, Safari, i20, Santro, Audi and Nano but not necessarily in the same order. There are three female members in the group.

P is an engineer and he comes in Innova. Q comes in Alto. The one who has i20 is not an engineer. No female has either Santro or Safari. The one who has Safari is not an engineer. N and J do not own either Santro or Audi. J is a female and both L and J are not managers. R is a manager and she has an Audi. K is not a manager and he comes in a Nano. M is a female.

41. Which of the following is a group of females?
 (a) J, N, L (b) M, R, K (c) J, M, R (d) M, N, J
42. N has which of the following cars?
 (a) i20 (b) Safari (c) Indica (d) Santro
43. Who among the following has Indica?
 (a) The one who is a female manager
 (b) The one who is a male engineer
 (c) The one who is a female engineer
 (d) Can't be determined
44. Who among the following is not a male?
 (a) M (b) L (c) K (d) N
45. Which of the following statements is true?
 (a) K is a manager and he has Nano
 (b) N is a female and she is a manager
 (c) J is an engineer and she has Safari
 (d) None of these

Directions (Q.No. 46 to 50): Study the following information carefully and answer the questions given below:

L, M, N, O, P, Q, R and S are sitting around a circular table. Two of them are not facing the center but sit opposite each other.

R is second to the right of L and third to the right of N. M is second to the left of N and fourth to the right of O. P. is second to the right of S and is facing the center. The person facing outward is an immediate neighbor of R and L, O sits second to the right of N and is not a neighbor of L.

46. Who among the following is an immediate neighbor of P?
 (a) M, S (b) L, Q (c) N, M (d) Can't be determined
47. Who among the following is second to the left of Q?
 (a) O (b) M (c) R (d) P
48. Who among the following is third to the left of M?
 (a) N (b) S (c) R (d) Can't be determined
49. Who among the following are not facing the center?
 (a) PM (b) NL (c) RQ (d) NQ
50. Who among the following sits second to the right of N?
 (a) L (b) O (c) S (d) Q

Part-II: Mathematical Puzzles

51. You have a 4 litre jug and a 9 litre jug and you have got a pool with water. What is the minimum number of steps you have to take to come up with exactly 6 litres of water? Well, you cannot pour some water into the 9 litre jug and then guess whether there is 6 litres or not. And you cannot fill just half of any jar with water. One step means- one movement- putting water into one or another jug. Emptying the jug is not a step. For instance, filling the 4 litre jug and then pouring it into the 9 litre jug are 2 steps.
52. I went on a holiday to a hill station. It snowed for 15 days. But when it snowed in the morning the afternoon was lovely. And when it snowed in the afternoon the day was preceded by a clear morning. Altogether there were 14 very nice mornings and 17 very nice afternoons. How many days did my holiday last?
53. 100 people standing in a circle in an order 1 to 100. No. 1 has a sword. He kills the next person (i.e. No. 2) and gives the sword to the next (i.e. No. 3). All people do the same until only one survives. Which number survives at the last?

54. A thief wants to open a lock with 5 digits as the key to open it. He knows that the 3rd digit is three less than 2nd digit, while 2nd digit is five smaller than 4th digit. The first digit is three times the fifth digit. None of its digit is zero, also third and fifth digits are equal. Find the sum of digits of the 5-digit number to be used as a key to open a lock.
55. Consider a number 268, where last digit is the sum of first two digits i.e. $2 + 6 = 8$. How many such 3-digit numbers are there?
56. You have 12 similar looking coins. 11 of them weigh the same. One of them is heavier than the others. You also have a scale. You can put coins on both sides of the scale and it'll tell you which side is heavier or will stay in the middle if both sides weight the same. What is the minimum number of weighing required to find out the odd coin.
57. In a building there are 888 doors and 888 residents. Each door is assigned a number from 1 to 888. Initially all doors are open. On day 1, resident no. 1 reverses the positions of all the doors. On day 2 resident no. 2 reverses the positions of door numbers 2, 4, 6,.... On day 3 resident no. 3 reverses the positions of door numbers 3, 6, 9.... And so on. This happens till day no. 888. How many doors are closed at the end of day 888?
58. Four persons (A, B, C, D) have to get across a bridge. However, it is dark and they need a flashlight, but the problem is that they have only one flashlight with them. Moreover, the bridge is not in a good condition and can take the weight of only two persons at a time. Each of them walks at a different speed: person A takes only 1 minute to cross the bridge, Person B take 2 minutes, C takes 5 minutes and D takes 10 minutes to cross the bridge. When two people cross the bridge together (sharing the flashlight), they both walk at the slower person's pace. Think about that how they would minimize the time to get across without violating the stated conditions. What is the minimum time needed?
59. There are 3 persons- A, B and C. On some day, A lent tractors to B and C as many as they had. After a month B gave as many tractors to A and C as many as they have. After a month C did the same thing. At the end of this transaction each one of them had 16. Find the no of tractors A originally had?
60. Sahil would like to take a new apartment on rent. The owner asks him: "Please tell me how many children you have." Sahil answers: "I have three of them." The owner: "What are the ages of your children?". He answers: "The product of the ages is equal to 12." The owner replies: "This is not enough information dear!". "Sorry that I was a little bit unclear, but the sum of the ages is equal to prime number," says Sahil. The owner: "Thanks for your cooperation, I now know the ages." Are you as smart as the owner? Then find the age of elder son.



SPACE FOR ROUGH WORK

Answer Key

Answer Key					
1	a	21	c	41	c
2	a	22	b	42	b
2	b	23	c	43	c
4	a	24	d	44	a
5	d	25	b	45	d
6	b, c	26	a, b	46	c
7	a, c	27	a, d	47	a
8	6	28	50	48	b
9	20	29	02	49	d
10	20	30	50	50	b
11	b	31	a	51	6
12	c	32	c	52	23
13	d	33	c	53	73
14	c	34	a	54	18
15	a	35	a	55	45
16	c	36	a, c	56	3
17	a, b, c	37	d	57	29
18	80	38	4	58	17
19	3	39	10	59	26
20	4	40	0	60	3