1. Lilly had a math project to do for her geometry class. Her teacher wrote, "A cuboctohedren is a polyhedron that can be formed by slicing a cube at the midpoints of its edges." Lilly had to find the surface area of the cuboctobedren formed by a cube having a side of length 4cm?

(a) $48 + 4\sqrt{48}$

(c) $48 + 2\sqrt{48}$

(b) $48 - 4\sqrt{48}$

(d) $48 - 2\sqrt{48}$

2. What should be added with x^2+12x to get a perfect square?

(a) 16

(c) 36

(b) 49

(d) 40

3. The sum of a number and its square is 90. Find the number.

(a) 8 or -11

(c) -8 or 11

(b) 10 or -9

(d) -10 or 9

4. What is the next term in the sequence?

2, 10,202, _____.

(a) 81610 (c) 81612

(b) 81611 (d) 81613

5. Darryl ate 100 peanut butter cups in five days. Each day he ate six more than he ate the previous day. How many peanut butter cups did Darryl eat on the first day?

(a) 4 (c) 16

(b) 8 (d) 9

6. The numerator of a certain fraction is 3 less than the denominator. If the numerator is tripled and the denominator is increased by 7, the value of the resulting fraction is 3/2. What was the original fraction?

X = denominator

X-3 = numerator

(a) 10/17 (c) 10/11

(b) 10/19 (d) 10/13

7. The minute hand of a clock is 6cm long. To the nearest centimeter, how far does the tip of the minute hand move in 35 minutes?

(a) 5∏ cm

(c) 7∏ cm

(b) 6∏ cm

(d) 8∏ cm

8. I have sold 2/3 of my pencils for $0.15 each. If I have 8 pencils left, how much money did I collect for the pencils I sold?

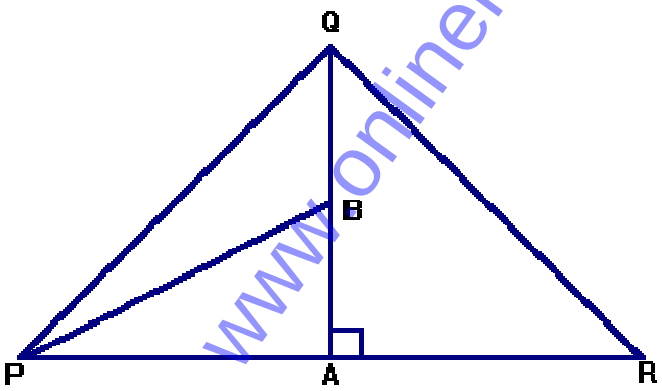
(a) $4.40

(c) $2.40

(b) $1.40

(d) $3.40

9. Triangle PQR is equilateral. QR = 30 units, B is the midpoint of QA. QA is perpendicular to PR. What is the length of PB?



(a) 4

(c) 2

(b) 3

(d) 1

10. In a class of 30 boys collect stamps, 20 collect coins and 10 collect both stamps and coins. Find the number of boys in the class assuming everybody collects either stamps or coins.

(a) 20

(c) 10

(b) 40

(d) 30

11. A motorcycle and a truck left a roadside diner at the same time. After travelling in the same direction for one and quarter hours, the motorcycle had travelled 25km farther than the truck. If the average speed of the motorcycle was 60km/hour, find the average speed of the truck.

(a) 20 km/hr

(b) 40 km/hr

(c) 10 km/hr

(d) 30 km/hr

12. Mark has $4.50 and Jean-Martin has $3.00. Mark spends twice as much as Jean-Martin and now sees that he has half as much money left as Jean-Martin has left. How much money did Mark spend? How much money did Jean-Martin spend?

(a) $4, $2

(b) $4, $6

(c) $1, $3

(d) $1, $4

13. For what value of θ, $\tan \theta = \cot \theta$

(a) 30°

(b) 45°

(c) 60°

(d) 90°

14. If the five expressions $2x + 1$, $2x - 3$, $x + 2$, $x + 5$, and $x - 3$ can be arranged in a different order so that the first three have a sum $4x + 3$, and the last three have a sum $4x + 4$, what would the middle expression be?

(a) $x-3$

(b) $2x+1$

(c) $x+5$

(d) $x+2$

15. Jill loves math but she hates this problem. Can you help her? The sum of four numbers is 64. If you add 3 to the first number, 3 is subtracted from the second number, the third is multiplied by 3 and the fourth is divided by three, then all the results will be equal. What is the difference between the largest and the smallest of the original numbers?

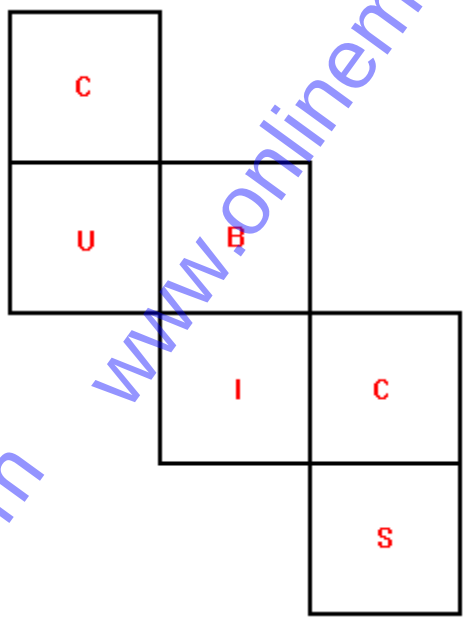
(a) 27

(b) 49

(c) 36

(d) 51

16. If the figure shown is folded to make a cube, then what is the letter opposite the S?



(a) I

(c) B

(b) S

(d) U

17. In a recent election at the Dr. John Hugh Gillis High School, Susie Cook received 542 votes, Greg MacDonald received 430 votes and Travis Austen received 130 votes. If 90% of those eligible to vote did so, what was the number of eligible voters?

(a) 1324

(c) 1144

(b) 1444

(d) 1224

18. In a recent survey, 40% of houses contained two or more people. Of those homes containing only one person, 25% contained a male. What is the percentage of all houses which contain exactly one female and no males?

(a) 23%

(b) 45%

(c) 44%

(d) 24%

19. Find the area of a sector whose radius is 35cm, and perimeter 147 cm.

(a) 1347.5 cm^2

(b) 1447.5 cm^2

(c) 1547.5 cm^2

(d) 1647.5 cm^2

20. Melissa and Craig were doing their math homework. They had a disagreement on one of the problems. The problem read, "What is the value of $(4)(2^{1996})$? Melissa found it to be (8^{1996}), but Craig disagreed and felt it was (2^{1998}). Were either of them right? If so, who was right?

(a) 2^{1998}

(b) 2^{1999}

(c) 2^{1996}

(d) 2^{1997}

21. A cubic meter of water weighs 1000kg. What is the weight of a waterbed mattress that is 2 meters by 3 meters by 20cm if the casing of the mattress weighs 1kg?

(a) 1199 kg

(c) 1201 kg

(b) 1200 kg

(d) 1202 kg

22. "Was that your bike Mom?" asked Charlene in awe. Her mother looked at the faded old photo and replied, "My first, and I earned it. I got a job that summer with a cycle dealer and he was to pay me thirty dollars and this new bike for seven weeks of work. But I didn't enjoy the job so I quit after four weeks. He gave me three dollars and I kept the bike." How much was the bike worth?

(a) $33

(c) $48

(b) $96

(d) $14

23. Can you guess this number?

- The number is not an odd number.
- It has exactly four factors.
- If you reverse the digits, a prime number is formed.
- The sum of the digits is a two digit prime number.
- The number is less than the square root of 10^4.
- One of the digits is a square number.

What number are we thinking of?

(a) 31 (c) 74

(b) 96 (d) 14

24. George Jefferson plans to drive from his home to Edmonton, a trip of 2200km. His car has a 24 gallon tank and gets 27km to the gallon. If he starts out with a full tank of gasoline, what is the fewest number of stops he will have to make for gasoline to complete his trip to Edmonton?

(a) 2 (c) 7

(b) 6 (d) 3

25. Chris asked Loretta her age and she said:

"My age?" she asked, "you'll have to guess!"

"Just let me think, AH!, that's it: yes!!"

"Reverse my age, divide by three, add thirty-four, my age you'll see!"

How old was Loretta?

(a) 26

(c) 15

(b) 42

(d) 22

26. Stephanie wasn't very keen on Algebra. Her teacher gave her an Algebra problem and told Stephanie to solve it. She was having problems, can you help her?

$3x + 7 = x^2 + k = 7x + 15$ What is the value of k?

(a) K=-6

(c) k=-3

(b) K=-1

(d) k=-2

27. Fred picked four numbers out of a hat. The average of the four numbers is 9. If three of the numbers are 5, 9 and 12, then what is the fourth number?

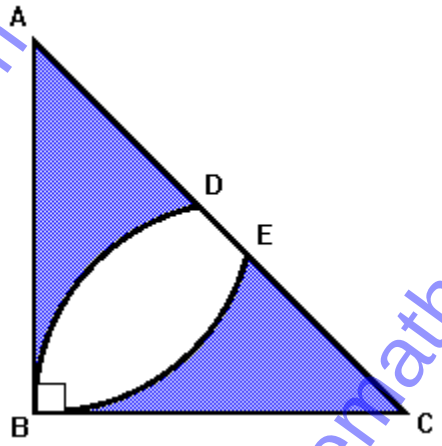
(a) 15

(c) 5

(b) 4

(d) 10

28.



Triangle ABC is an isosceles right angled triangle with BC = AB = 2. A circular arc of radius 2 with centre C meets the hypotenuse at D. A circular arc of radius 2 with center a meets the hypotenuse E. What is the area of the shaded region?

(a) 3.906 units^2

(c) 1.906 units^2

(b) 2.906 units^2

(d) 0.906 units^2

29. Constable Bob is driving along the Trans-Canada Highway at 100 km/h. He is passed by Melissa who is driving in the same direction at a constant speed. Ten seconds after Melissa passed Bob, their cars are 100m apart. What is the speed of Melissa's car in km/h?

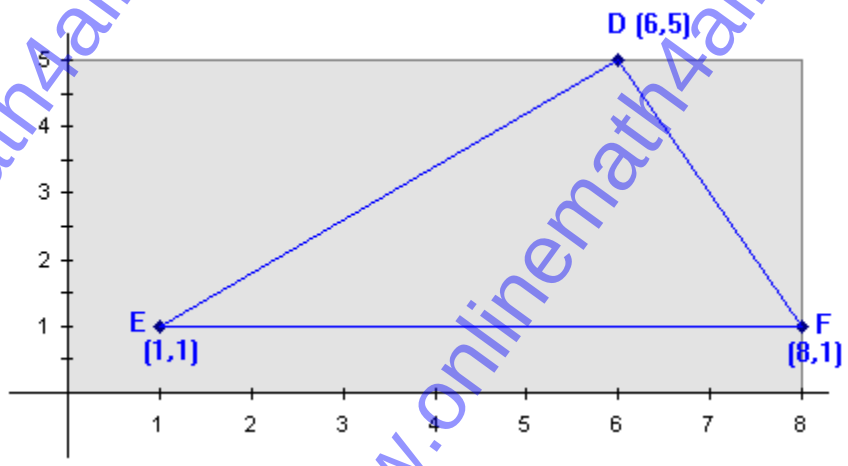
(a) 136 km/hr

(c) 166 km/hr

(b) 126 km/hr

(d) 185 km/hr

30. You are given this graph of a triangle DEF and you are asked its area. What do you think it is?



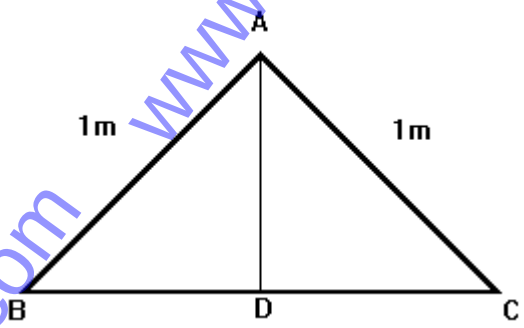
(a) 39 units^2

(c) 19 units^2

(b) 14 units^2

(d) 90 units^2

31. Joy, Noella and Holly were playing jump rope. Joy and Noella at points B and C were twirling the skipping rope waiting for Holly at point A to jump into the middle of the rope (at point D). The three girls formed a 90 degree angle. Holly was 1m away from Noella and 1m away from Joy. How far does she have to jump into the middle of the skipping rope? AD is perpendicular to BC.



(a) 0.607 m

(b) 0.707 m

(c) 0.807 m

(d) 0.907 m

32. Three grade nine Math students were given the following problem:

A three digit number 2A4 is added to 329 and gives 5B3. If 5B3 is divisible by 3, then what is the largest possible value of A? One student thought A could be 1. Another student thought A was 5. The last student thought A was 4.

Who was correct?

(a) First student

(b) Second student

(c) The last student

(d) None of them correct

33. Ian was entering a Math contest for Grade 9. He was working on this particular problem. He was having difficulty with the answer. This was the problem: The integers greater than 1 are arranged, four in each row, in 5 columns, as follows:

a	b	c	d	e
	2	3	4	5
		9	8	7	6
10	11	12	13	
		17	16	15	14

If he followed the pattern what column would the number 1002 fall in?

(a) a
(b) b
(c) c
(d) d

34. A man invests $500 at the beginning of every year at 3% per annum compound interest. What is the amount to his credit at the end of the second year?

(a) $1015.45
(b) $1025.45
(c) $1035.45
(d) $1045.45

35. The Band Committee of 100 people wishes to set up a telephone call system. The initial contact person calls three other people, each of whom call three others and so on, until all the people in the Band Committee have been contacted. What is the maximum number of people they need to make the calls?

(a) 64

(b) 62

(c) 66

(d) 68

36. Bart Simpson goes to the corner store and buys an equal number of 35 cent and 30 cent candies for $22.75 (that's a lot of candy!!) How many candies did he buy?

(a) 70

(b) 72

(c) 76

(d) 78

37. After a Math test, each of the twenty-five students in the class got a peek at the teacher's grade sheet. Each student noticed five A's. No student saw all the grades and no student saw his or her own grade. What is the minimum number of students who scored A on the test?

(a) 3

(b) 4

(c) 5

(d) 6

38. Joe gives Nick and Tom as many peanuts as each already has. Then Nick gives Joe and Tom as many peanuts as each of them then has. Finally, Tom gives Nick and Joe as many peanuts as each has. If at the end each has sixteen peanuts, how many peanuts did Nick have at the beginning?

(a) 20

(c) 14

(b) 12

(d) 18

39. Coming out of the grocery store, Ebree has eight coins, of which none is a half-dollar, that add up to $1.45. Unfortunately, on the way home she loses one of them. If the chances of losing a quarter, dime or nickel are equal, which coin is most probably lost?

(a)Quarter

(c) Dime

(b) Nickel

(d) None of these

40. I have a broken fan belt on my car. The belt goes around 2 pulleys, whose centers are 15cm apart and each pulley is 4 cm in diameter. How long should the belt be?

(a) 28.3 cm

(c) 33.8 cm

(b) 42.6 cm

(d) 55.3 cm

41. Flora had an average of 56% on her first 7 exams. What would she have to make on her eighth exam to obtain an average of 60% on 8 exams?

(a) 78%

(b) 79%

(c) 55%

(d) 88%

42. A classroom contained an equal number of boys and girls. Eight girls left to play hockey, leaving twice as many boys as girls in the classroom. What was the original number of students present?

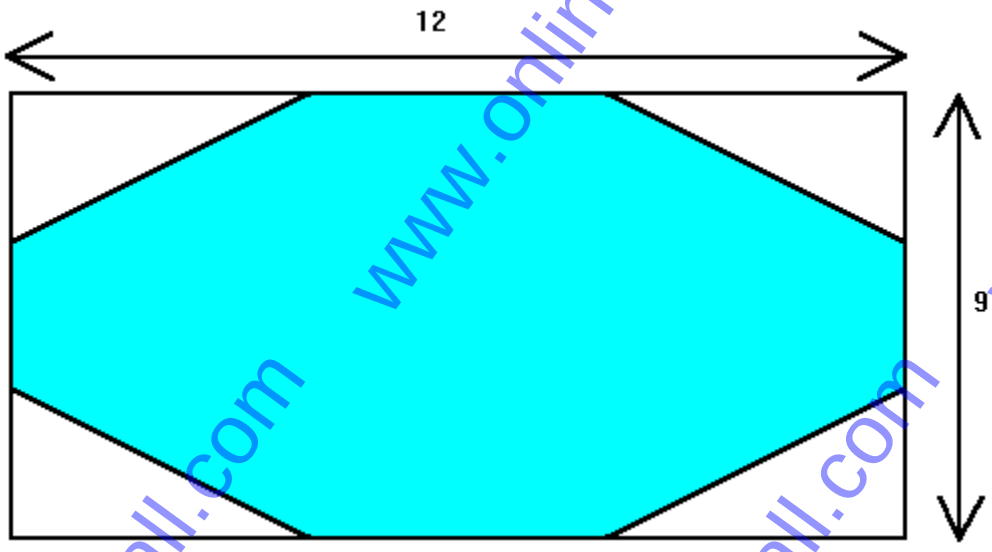
(a) 26

(b) 28

(c) 32

(d) 30

43. The Quinpool family decided to build a pool of the following shape. The sides of their 12 * 9 yard are trisected. What is the perimeter of the shaded pool?



(a) 26

(c) 32

(b) 34

(d) 30

44. An unusual die has six faces labeled 1,2,3,5,7 9. If two of these dice are rolled, and the numbers showing on the upper faces are added, what is the number of possible different sums?

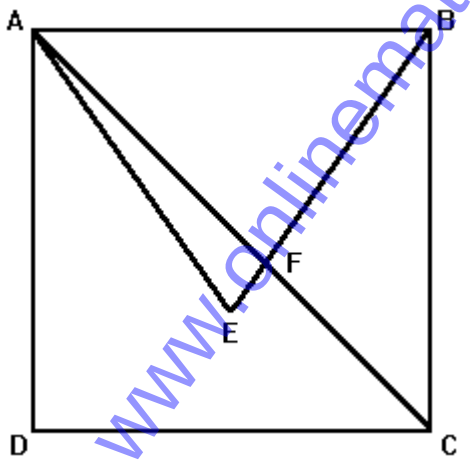
(a) 8

(c) 10

(b) 9

(d) 14

45. If ABCD is a square and ABE is an equilateral triangle, then what is the measure of < BFC?



(a) 105^0

(c) 85^0

(b) 115^0

(d) 125^0

46. Alex, Fred and Thomas run at constant rates. In a race of 1,000m, Alex finished 200m ahead of Fred and 400m ahead of Thomas. When Fred finished, how far was he ahead of Thomas? (in m)

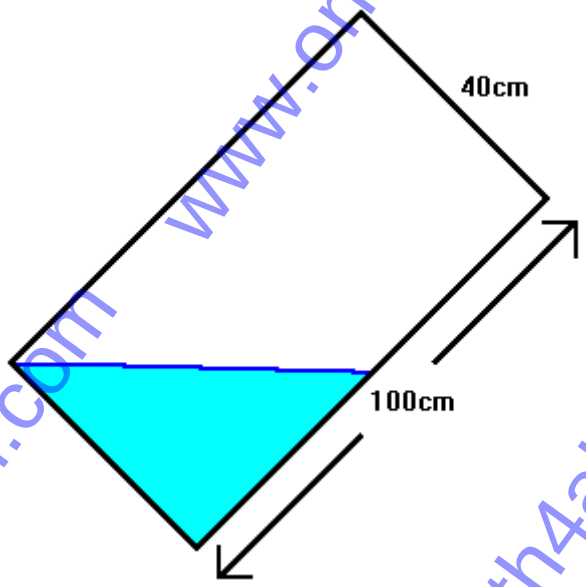
(a) 170

(c) 190

(b) 200

(d) 250

47. George and Phil were playing with their fish tank again. They had a difficult time keeping their fish alive. The fish tank is 100cm long, 60 cm wide and 40 cm high. They tilted the tank, as shown, resting on a 60 cm edge, with the water level reaching the midpoint of the base. When they rest the tank down to a horizontal position, what is the depth of the water in cm?



(a) 50cm

(c) 10cm

(b) 20cm

(d) 15cm

48. In # 2 Joyce needed to find the material she would need for the shaded region. How much material would she need for the unshaded region in m^2?

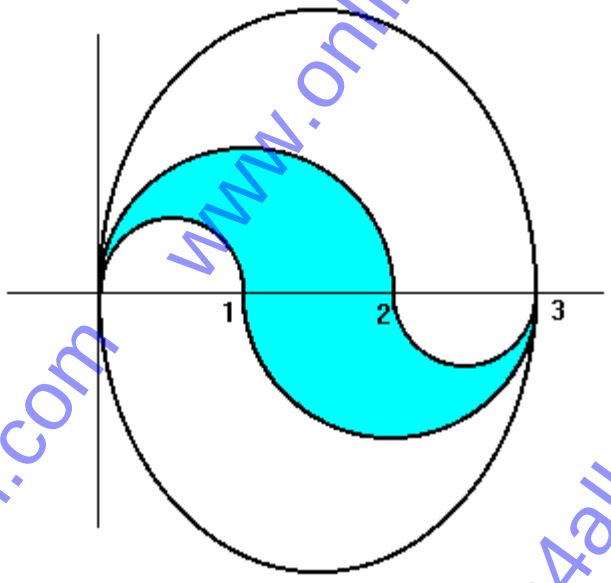
(a) $3\Pi/2\ m^2$

(c) $5\ \Pi/2\ m^2$

(b) $\Pi\ m^2$

(d) $\Pi/2\ m^2$

49. Joyce was decorating her store window for a going out of business sale. She wanted to make a figure that looks like the following. The shaded piece is made of a different material. How much material does she need in meters squared?



(a) $3\Pi/4$ m^2

(b) Π m^2

(c) $5\ \Pi/2$ m^2

(d) $\Pi/2$ m^2

50. Elizabeth visits her friend Andrew and then returns home by the same route. She always walks 2km/h when going uphill, 6km/h when going downhill and 3km/h when on level ground. If her total walking time is 6 hours, then what is the total distance she walks in km?

(a) 20

(b) 23 km

(c) 18 km

(d) 21 km

Answers:

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