SAT MATH Practice Paper 7

1. A gas station sells regular gasoline for $2.39 per gallon and premium gasoline for $2.79 per gallon. If the gas station sold a total of 550 gallons of both types of gasoline in one day for a total of $1,344.50, how many gallons of premium gasoline were sold?

(A) 25
(B) 75
(C) 175
(D) 475

2. If $f(x) = 2x^2 + 4$ for all real numbers x, which of the following is equal to $f(3) + f(5)$?

(A) $f(4)$
(B) $f(6)$
(C) $f(10)$
(D) $f(15)$

3. In the figure below, circle O has a radius of 8, and angle XOY measures $5/16\,\pi$ radians. What is the measure of minor arc XY ?

(A) $5/16\,\pi$
(B) $5/2\,\pi$

(C) 5π

(D) 16π
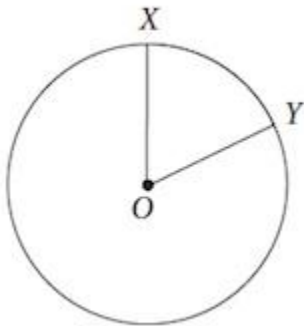
4. Of the following, which is greater than ½ ?

A. 2/5

B. 4/7

C. 4/9

D. 5/11

E. 6/13

5. If an object travels at five feet per second, how many feet does it travel in one hour?

A. 30

B. 300

C. 720

D. 1800

E. 18000

6. What is the average (arithmetic mean) of all the multiples of ten from 10 to 190 inclusive?

A. 90

B. 95

C. 100

D. 105

E. 110

7. A cubical block of metal weighs 6 pounds. How much will another cube of the same metal weigh if its sides are twice as long?

A. 48

B. 32

C. 24

D. 18

E. 12

8. In a class of 78 students 41 are taking French, 22 are taking German. Of the students taking French or German, 9 are taking both courses. How many students are not enrolled in either course?

A. 6

B. 15

C. 24

D. 33

E. 54

9. If $f(x) = |(x^2 \diamond 50)|$, what is the value of f(-5) ?

A. 75

B. 25

C. 0

D. -25

E. -75

10. $(\sqrt{2} - \sqrt{3})^2 =$

A. $5 - 2\sqrt{6}$

B. $5 - \sqrt{6}$

C. $1 - 2\sqrt{6}$

D. $1 - \sqrt{2}$

E. 1

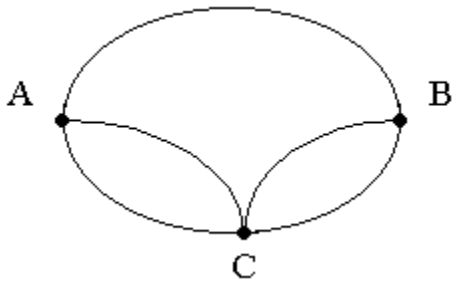11. $2^{30} + 2^{30} + 2^{30} + 2^{30} =$

A. 8^{120}

B. 8^{30}

C. 2^{32}

D. 2^{30}

E. 2^{26}

12. Amy has to visit towns B and C in any order. The roads connecting these towns with her home are shown on the diagram. How many different routes can she take starting from A and returning to A, going through both B and C (but not more than once through each) and not travelling any road twice on the same trip?
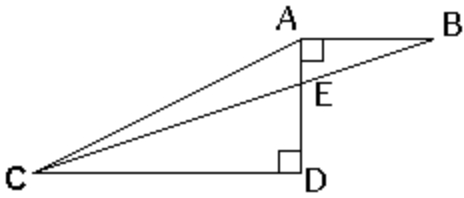
A. 10

B. 8

C. 6

D. 4

E. 2

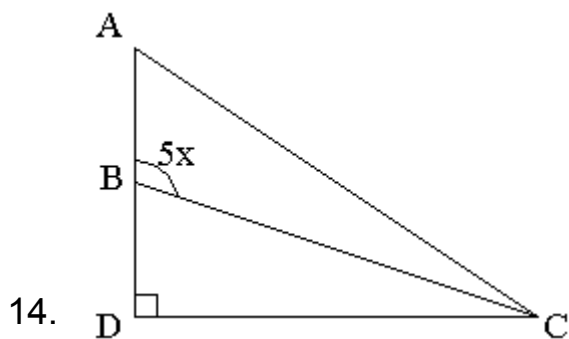13. In the figure above AD = 4, AB = 3 and CD = 9. What is the area of

triangle AEC ?

A. 18

B. 13.5

C. 9

D. 4.5

E. 3

14.

Which of the following could be a value of x, in the diagram above?

A. 10

B. 20

C. 40

D. 50

E. any of the above

15. Helpers are needed to prepare for the fete. Each helper can make either 2 large cakes per hour, or 35 small cakes per hour. The kitchen is available for 3 hours and 20 large cakes and 700 small cakes are needed. How many helpers are required?

A. 10

B. 15

C. 20

D. 25

E. 30

16. Jo's collection contains US, Indian and British stamps. If the ratio of US to Indian stamps is 5 to 2 and the ratio of Indian to British stamps is 5 to 1, what is the ratio of US to British stamps?

A. 5 : 1

B. 10 : 5

C. 15 : 2

D. 20 : 2

E. 25 : 2

17. A 3 by 4 rectangle is inscribed in a circle. What is the circumference of the circle?

A. 2.5π

B. 3π

C. 5π

D. 4π

E. 10π

18. Two sets of 4 consecutive positive integers have exactly one integer in common. The sum of the integers in the set with greater numbers is how much greater than the sum of the integers in the other set?

A. 4

B. 7

C. 8

D. 12

E. it cannot be determined from the information given.

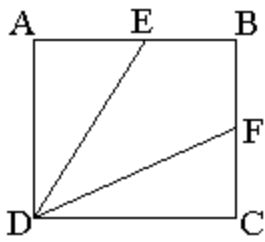19. If $f(x) = (x + 2) / (x-2)$ for all integers except x=2, which of the following has the greatest value?

A. f(-1)

B. f(0)

C. f(1)

D. f(3)

E. f(4)

20. ABCD is a square of side 3, and E and F are the mid points of sides AB and BC respectively. What is the area of the quadrilateral EBFD ?

A. 2.25

B. 3

C. 4

D. 4.5

E. 6

21. If n ≠ 0, which of the following must be greater than n?

I 2n

II n^2

III 2 - n

A. I only

B. II only

C. I and II only

D. II and III only

E. None

22. After being dropped a certain ball always bounces back to 2/5 of the height of its previous bounce. After the first bounce it reaches a height of 125 inches. How high (in inches) will it reach after its fourth bounce?

A. 20

B. 15

C. 8

D. 5

E. 3.2

23. n and p are integers greater than 1

5n is the square of a number

75np is the cube of a number.

The smallest value for n + p is

A. 14

B. 18

C. 20

D. 30

E. 50

24. The distance from town A to town B is five miles. C is six miles from B. Which of the following could be the distance from A to C?

I 11

II 1

III 7

A. I only

B. II only

C. I and II only

D. II and III only

E. I, II, or III.

25. $\sqrt{5}$ percent of $5\sqrt{5}$ =

A. 0.05

B. 0.25

C. 0.5

D. 2.5

E. 25

26. If pqr = 1 , rst = 0 , and spr = 0, which of the following must be zero?

A. P

B. Q

C. R

D. S

E. T

27. $\dfrac{6^5 - 6^4}{5} =$

A. 1/5

B. 6/5

C. 6³

D. $6^4 / 5$

E. 6^4

28. -20 , -16 , -12 , -8 ....

In the sequence above, each term after the first is 4 greater than the preceding term. Which of the following could not be a term in the sequence?

A. 0

B. 200

C. 440

D. 668

E. 762

29. If $f(x) = x^2 \diamond 3$, where x is an integer, which of the following could be a value of f(x)?

I 6

II 0

III -6

A. I only

B. I and II only

C. II and III only

D. I and III only

E. I, II and III

30. For how many integer values of n will the value of the expression 4n + 7 be an integer greater than 1 and less than 200?

A. 48

B. 49

C. 50

D. 51

E. 52

31.
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  5A
  BC
 ────
 D43
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In the above correctly worked addition sum, A,B,C and D represent different digits, and all the digits in the sum are different. What is the sum of A,B,C and D?

A. 23

B. 22

C. 18

D. 16

E. 14

32. 12 litres of water are poured into an aquarium of dimensions 50cm length, 30cm breadth, and 40cm height. How high (in cm) will the water rise?

(1 litre = 1000cm^3)

A. 6

B. 8

C. 10

D. 20

E. 40

33. Six years ago Anita was P times as old as Ben was. If Anita is now 17 years old, how old is Ben now in terms of P ?

A. 11/P + 6

B. P/11 +6

C. 17 - P/6

D. 17/P

E. 11.5P

34. If $a^2 = 12$, then $a^4 =$

A. 144

B. 72

C. 36

D. 24

E. 16

35. If n is even, which of the following cannot be odd?

I n + 3

II 3n

III n² - 1

A. I only

B. II only

C. III only

D. I and II only

E. I, II and III

36. One side of a triangle has length 8 and a second side has length 5. Which of the following could be the area of the triangle?

I 24

II 20

III 5

A. I only

B. II only

C. III only

D. II and III only

E. I, II and III

37. A certain animal in the zoo has consumed 39 pounds of food in six days. If it continues to eat at the same rate, in how many more days will its total consumption be 91 pounds?

A. 12

B. 11

C. 10

D. 9

E. 8

38. A perfect cube is an integer whose cube root is an integer. For example, 27, 64 and 125 are perfect cubes. If p and q are perfect cubes, which of the following will not necessarily be a perfect cube?

A. 8p

B. pq

C. pq + 27

D. -p

E. $(p - q)^6$

39. What is the length of the line segment in the x-y plane with end points at (-2,-2) and (2,3)?

A. 3

B. $\sqrt{31}$

C. $\sqrt{41}$

D. 7

E. 9

40. n is an integer chosen at random from the set

{5, 7, 9, 11 }

p is chosen at random from the set

{2, 6, 10, 14, 18}

What is the probability that n + p = 23 ?

A. 0.1

B. 0.2

C. 0.25

D. 0.3

E. 0.4

41. A dress on sale in a shop is marked at $D. During the discount sale its price is reduced by 15%. Staff are allowed a further 10% reduction on the discounted price. If a staff member buys the dress what will she have to pay in terms of D ?

A. 0.75D

B. 0.76D

C. 0.765D

D. 0.775D

E. 0.805D

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.    .    .

.    .    .
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42. .   .   .

 All the dots in the array are 2 units apart vertically and horizontally. What is the length of the longest line segment that can be drawn joining any two points in the array without passing through any other point ?
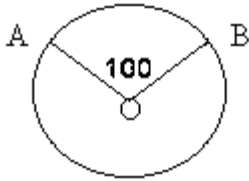
A. 2

B. 2√2

C. 3

D. √10

E. √20

43.

 If the radius of the circle with centre O is 7 and the measure of angle AOB is 100, what is the best approximation to the length of arc AB ?

A. 9

B. 10

C. 11

D. 12

E. 13

44. Sheila works 8 hours per day on Monday, Wednesday and Friday, and 6 hours per day on Tuesday and Thursday. She does not work on Saturday and Sunday. She earns $324 per week. How much does she earn in dollars per hour?
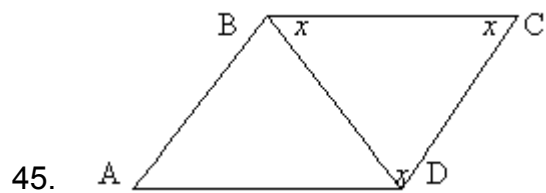
A. 11

B. 10

C. 9

D. 8

E. 7

45.

 ABCD is a parallelogram. BD = 2. The angles of triangle BCD are all equal. What is the perimeter of the parallelogram?

A. 12

B. 9√3

C. 9

D. 8

E. 3√3

46. If the product of 6 integers is negative, at most how many of the integers can be negative?

A. 2

B. 3

C. 4

D. 5

E. 6

47. If a positive integer n, divided by 5 has a remainder 2, which of the following must be true?

I n is odd

II n + 1 cannot be a prime number

III (n + 2) divided by 7 has remainder 2

A. none

B. I only

C. I and II only

D. II and III only

E. I, II and III

48. A solid cube of side 6 is first painted pink and then cut into smaller cubes of side 2. How many of the smaller cubes have paint on exactly 2 sides?

A. 30

B. 24

C. 12

D. 8

E. 6

49. Line *l* contains the points (3,1) and (4,4).

If line *m* is a different line, parallel to line *l* in the same coordinate plane, which of the following could be the equation of line *m*?
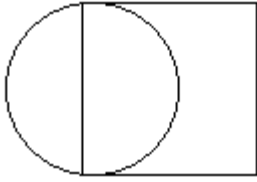
A. y = 3x - 8

B. y = 1/3x - 3

C. y = -3x - 8

D. y = 3x + 1

E. y = -8x + 3

50.

 In the figure above the square has two sides which are tangent to the circle. If the area of the circle is 4a²π, what is the area of the square?

A. 2a²

B. 4a

C. 4a²

D. 16a²

E. 64a²