STATE OF NEVADA

Nevada High School Proficiency Examination

Math
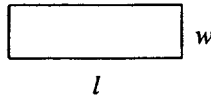
Form A2
Released
Part 1

Formula Sheet

Note To Student: *You may use these formulas throughout this entire test. Feel free to flip back to this "Formula Sheet" as needed during your testing time.*
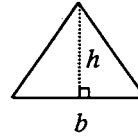
Rectangle
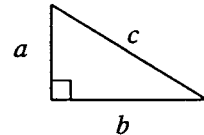
Perimeter $P = 2l + 2w$
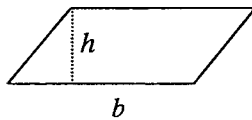or
$P = 2(l + w)$

Area $A = lw$

Parallelogram

Area $A = bh$

Circle

Circumference $C = 2\pi r$
or
$C = \pi d$

Area $A = \pi r^2$

Triangle

Area $A = \frac{1}{2} bh$

Pythagorean Theorem

$a^2 + b^2 = c^2$

Rectangular Solid
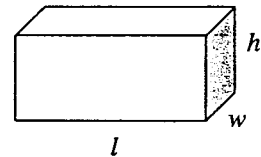
Volume $V = lwh$
Surface Area $SA = 2lw + 2lh + 2hw$

Cylinder
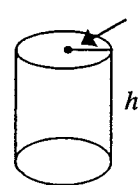
Volume $V = \pi r^2 h$

Cone
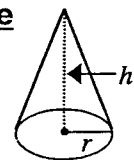
Volume $V = \frac{1}{3} \pi r^2 h$

Other Necessary Information

1 square foot = 144 square inches

1 square yard = 1,296 square inches
or 9 square feet

1 cubic foot = 1,728 cubic inches

1 cubic yard = 27 cubic feet

1 meter = 1,000 millimeters

1 kilometer = 1,000 meters

$\pi \approx 3.14$ or $\frac{22}{7}$

Distance $d = rt$

Interest $i = prt$

2 pints = 1 quart

4 quarts = 1 gallon

Part - 1   Part - 1   Part - 1   Part - 1

1. Fred made a wooden planter box for $8. He later sold the box for $10. Which of the following is Fred's percentage of profit?

    A. 2%
    B. 8%
    C. 10%
    D. 20%
    E. 25%

2. What is the best estimate of the cost of 1 hot dog if 8 hot dogs cost $2.33?

    A. $.20
    B. $.24
    C. $.25
    D. $.30
    E. $.40

3. The table below shows the results of a survey on favorite fruit juices. For a sample of 500 people, how many would you expect to choose orange juice?

    Favorite Fruit Juices
    #selecting

Orange	21
Grapefruit	6
Pineapple	10
Apple	15
Tomato	8

    A. 150
    B. 175
    C. 200
    D. 210
    E. 225

4. Kim must rope off a garden plot. To estimate the length of rope needed, she correctly rounded each of the given distances to the nearest meter and then added the distances. Which of the following equations shows Kim's work?

    9.5 m   6.3 m   2.7m   4.2 m
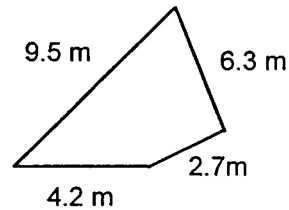
    A. $4 + 2 + 6 + 9 = 21$
    B. $4 + 3 + 6 + 9 = 22$
    C. $4 + 3 + 6 + 10 = 23$
    D. $5 + 3 + 6 + 10 = 24$
    E. $5 + 3 + 7 + 10 = 25$

5. Vanessa's scores on her biology tests for the semester were 93, 68, 45, 86, and 88. What was her average score?

    A. 45
    B. 76
    C. 80
    D. 86
    E. 380

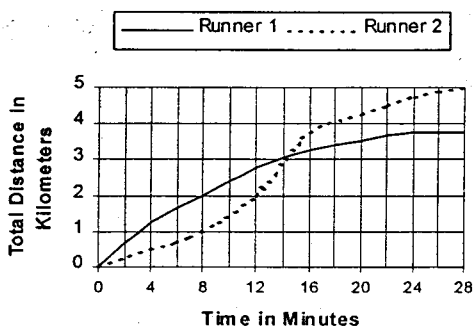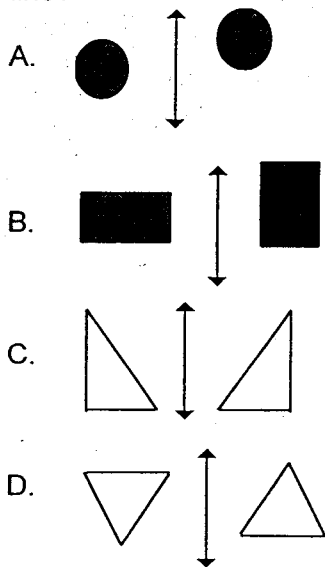6. The total distances covered by two runners during the first 28 minutes of a race are shown in the graph below. How long after the start of the race did one runner pass the other?

A. 3 minutes
B. 8 minutes
C. 12 minutes
D. 14 minutes
E. 28 minutes

7. Which pair of figures below shows the reflection of an image over the line?

E. All of them are reflections.

8. Tacos cost $1.25, and enchiladas cost $2.50. If you buy 8 items and you are charged $15.00, how many of each item did you buy?

A. 4 tacos and 4 enchiladas
B. 2 tacos and 6 enchiladas
C. 6 tacos and 2 enchiladas
D. 0 tacos and 8 enchiladas
E. 3 tacos and 5 enchiladas

9. Which is the equivalent multiplication problem for $\frac{3}{4} \div \frac{7}{9}$?

A. $\frac{3}{4} \times \frac{7}{9}$

B. $\frac{3}{4} \times \frac{9}{7}$

C. $\frac{4}{3} \times \frac{7}{9}$

D. $\frac{4}{3} \times \frac{9}{7}$

E. none of these

10. If a and b are integers, which statement is <u>ALWAYS TRUE</u>?

A. $a - b = b - a$

B. $a + b = b + a$

C. $\frac{a}{b} = \frac{b}{a}$

D. $a + 2b = b + 2a$

E. $2a - b = 2b - a$

11. A round pizza is cut into 10 pieces. What is the measure of the central angle of each piece?

    A. 10°
    B. 18°
    C. 36°
    D. 45°
    E. 90°

12. Last week, 765 people attended the opening of a movie. The theater was filled to 85% capacity. What is the theater's capacity?

    A. 114
    B. 650
    C. 680
    D. 850
    E. 900

13. The table below represents a linear function. What is the value of h when $t = 10$?

t	1	2	3	...	10
h	5	7	9	...	?

    A. 13
    B. 18
    C. 23
    D. 28
    E. 33

14. Choose the correct expression for four less than three times a number.

    A. $4 - 3x$
    B. $4(3 - x)$
    C. $3(x - 4)$
    D. $3x - 4$
    E. $(3 - 4)x$

15. Mr. Diaz wants to build a fence around his yard. The yard is 140 feet long and 30 feet wide. How many feet of fencing will he need?

    A. 170 ft.
    B. 200 ft.
    C. 340 ft.
    D. 420 ft.
    E. 4200 ft.

16. What is the probability of having two heads and a tail land face up in three tosses of a coin?

    A. $\dfrac{1}{8}$

    B. $\dfrac{3}{8}$

    C. $\dfrac{1}{24}$

    D. $\dfrac{7}{16}$

    E. $\dfrac{5}{16}$

17. Jill usually makes 3 free throws out of every 5 attempted. To simulate her free throws, Jack puts 25 marbles in a bag. He uses red marbles to simulate "making a free throw" and blue marbles for a miss. How many blue marbles will Jack use?

    A. 2
    B. 3
    C. 5
    D. 10
    E. 15

18. The length and width of a rectangle are represented by $(x + 7)$ and $(x - 3)$. If the area of the rectangle is 24, which equation below can be used to find x?

    A. $(x + 7) + (x - 3) = 24$

    B. $2(x + 7) + 2(x - 3) = 24$

    C. $(x + 7)^2 + (x - 3)^2 = 24$

    D. $(x + 7)(x - 3) = 24$

    E. none of these

19. Describe what to do to the first number in each pair below in order to obtain the second number.

    (2,5) (4,9) (6,13)

    A. Add 3.
    B. Subtract 3.
    C. Multiply by 2.
    D. Multiply by 2 and add 1.
    E. Multiply by 2 and subtract 1.

20. The ages of the members of a family are 46, 48, 21, 12, 15, and 8. What is the mean age?

    A. 18
    B. 21
    C. 25
    D. 150
    E. There is no mean.

21. What is the volume V of a right circular cylinder in terms of π, with radius $r = 4$ and height $h = 10$?
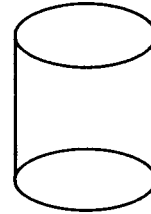
    A. 26π units^3
    B. 80π units^3
    C. 160π units^3
    D. 509π units^3
    E. $1,600\pi$ units^3

22. If the measure of an angle is represented by x, which expression below can be used to represent the measure of the complement of angle x?

    A. $(90 - x)°$

    B. $(x - 90)°$

    C. $(180 - x)°$

    D. $(x - 180)°$

    E. none of these

23. You and three friends are going to split a bill of $36.48 evenly. How much will each of you have to pay?

    A. $6.08
    B. $12.16
    C. $9.12
    D. $109.44
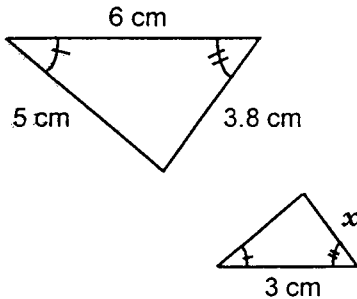   E. $145.92

24. The two triangles below are similar. Find *x*.
   **(Figures are not drawn to scale.)**

    A. 1.9 cm
    B. 2.5 cm
    C. 3.6 cm
    D. 7.6 cm
    E. 12.0 cm

25. Polly always eats twice as many crackers as Woody. How many crackers will Woody eat if the parrots together eat 36 crackers?

    A. 6
    B. 12
    C. 18
    D. 24
    E. 30

26. The measurement "63.5 square centimeters" could represent which of the following?

    A. the circumference of a circle
    B. the volume of a rectangular box
    C. the area of a circle
    D. the altitude of a triangle
    E. the diameter of a circle

27. Carl has saved $12.00 in his savings account and plans to save $3.00 each week. Ian has $9.00 and plans to save $4.00 each week. If both save as planned, after how many weeks will they have the same amount of money in their accounts?

    A. after 2 weeks
    B. after 3 weeks
    C. after 4 weeks
    D. after 5 weeks
    E. after 6 weeks

28. Luis babysat from 10:30 a.m. until 3:15 p.m., and was paid $2.00 per hour. How much money did Luis earn?

    A. $6.30
    B. $6.50
    C. $9.50
    D. $10.00
    E. $14.30

29. Find the area of the parallelogram below.
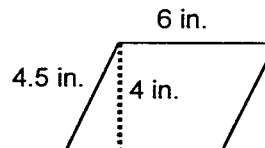
    A. 10 square inches
    B. 12 square inches
    C. 14.5 square inches
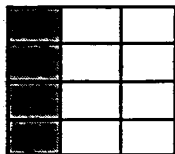   D. 24 square inches
    E. 27 square inches
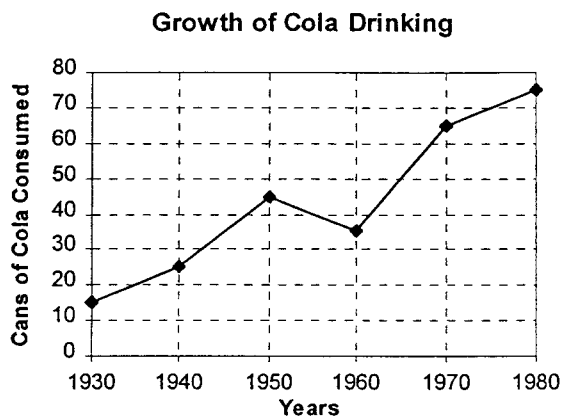
Part - 2   Part - 2   Part - 2   Part - 2

30. What portion of the square below is shaded?

A. $\dfrac{1}{4}$

B. $\dfrac{1}{3}$

C. 40%

D. 30%

E. $\dfrac{1}{12}$

31. The graph below shows the rate of cola consumption from 1930 to 1980. How many more cans of cola were consumed in 1970 than in 1940?

Growth of Cola Drinking

A. 25,000
B. 35,000
C. 40,000
D. 65,000
E. 90,000

32. A new set of golf clubs at The Sports Club sells for $149.95. A catalog offers the set for $129.50 plus $3.25 for shipping and handling. How much can be saved by purchasing the golf clubs through the catalog?

A. $12.70
B. $17.20
C. $20.45
D. $40.25
E. $132.75

Use the table below to answer questions 33 and 34.

**POPULATIONS OF DETROIT AND
LOS ANGELES
1920-1970**

Year	City	
	Detroit	Los Angeles
1920	950,000	500,000
1930	1,500,000	1,050,000
1940	1,800,000	1,500,000
1950	1,900,000	2,000,000
1960	1,700,000	2,500,000
1970	1,500,000	2,800,000

33. How many more people were living in Los Angeles in 1960 than in 1940?

   A.   100,000

   B.   500,000

   C.   800,000

   D.   1,000,000

   E.   2,500,000

34. What was the first year listed in which the population of Los Angeles was greater than the population of Detroit?

   A.   1930

   B.   1940

   C.   1950

   D.   1960

   E.   1970

35. The high temperature yesterday was –8°F. Today the high temperature was six degrees higher. What was today's temperature?

   A.   14° F

   B.   2° F

   C.   –2° F

   D.   –14° F

   E.   6° F

36. What is the best estimate of the measure of $\angle BOD$ in the figure below?
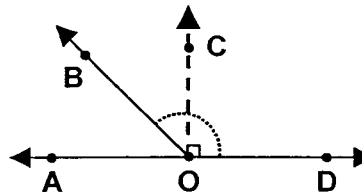
   A.   40°

   B.   50°

   C.   100°

   D.   140°

   E.   170°

37. Find the volume of the box below.
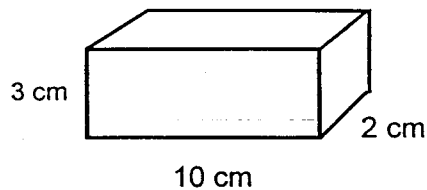
   A.   30 cubic cm
   B.   56 cubic cm
   C.   60 cubic cm
   D.   112 cubic cm
   E.   120 cubic cm

38. Tanisha mowed lawns from 9:30 a.m. until 4:15 p.m. She received $3.00 per hour. How much money did Tanisha earn?

    A. $12.45
    B. $19.35
    C. $20.25
    D. $21.75
    E. $23.25

39. The value of the 3rd term in the table below is 15. Find the value of the 18th term in the table.

Term	Value
1	7
2	11
3	15
4	19
5	23
...	...
...	...
18	?

    A. 22
    B. 27
    C. 69
    D. 72
    E. 75

40. In Kelly's refrigerator, there are several small cartons of juice: 4 apple, 3 orange, 2 cranberry, and 2 grapefruit. If Kelly selects a carton of juice without looking, what is the probability that she will select an orange juice?

    A. $\dfrac{3}{8}$

    B. $\dfrac{3}{11}$

    C. $\dfrac{1}{8}$

    D. $\dfrac{1}{11}$

    E. $\dfrac{1}{4}$

41. Which sentence illustrates the distributive property?

    A. $xy = yx$
    B. $x(yz) = (xy)z$
    C. $x(y + z) = xy + xz$
    D. $1(xy) = xy$
    E. $x + y = y + x$

Part - 2   Part - 2   Part - 2   Part - 2

42. If a letter is chosen at random from the word "baseball," what is the probability that the letter chosen is a "b"?

    A. $\frac{1}{4}$

    B. $\frac{3}{4}$

    C. $\frac{1}{8}$

    D. $\frac{1}{3}$

    E. $\frac{1}{5}$

43. A plumber charges $45.00 per hour worked plus a $15.00 service charge. If A represents his total charges in dollars and B represents the number of hours worked, which formula below could be used to calculate his total charge?

    A. $A = 45 + 15B$
    B. $A = 45 + 15 + B$
    C. $A = 45B = 15$
    D. $A = (45)(15) + B$
    E. $A = 60B$

44. In simplifying the expression below, which operation should be worked first?

    $$500 - 4 \times 5^3 + 35$$

    A. addition
    B. subtraction
    C. multiplication
    D. division
    E. exponentiation

45. The second hand on a clock travels from the 12 to the 9. How many degrees has the second hand traveled?

    A. 45°
    B. 90°
    C. 135°
    D. 180°
    E. 270°

46. Solve for x in the equation below.

    $$8.384 \times 10^3 = x$$

    A. 0.00834
    B. 0.0834
    C. 838.4
    D. 8384
    E. 83,840

47. The expression $\frac{7}{x-5}$ is undefined when x is equal to

    A. 0
    B. −5
    C. 5
    D. 7
    E. 10

48. A can of paint covers 100 square feet. How much paint will be needed to paint the four walls of a room when each wall is 10 ft. tall and 15 ft. long?

    A. 2 cans
    B. 3 cans
    C. 4 cans
    D. 6 cans
    E. 8 cans
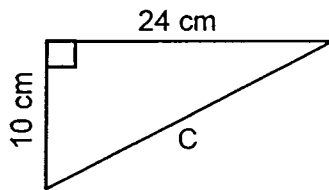
49. Solve the equation below for x.

$$6x + 36 = 3x$$

A. 4
B. −4
C. 12
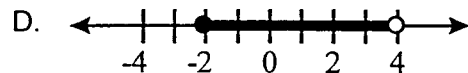D. −12
E. 18

50. Find the hypotenuse C in the figure below.
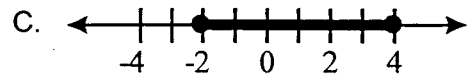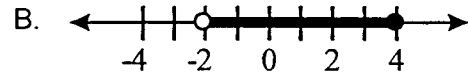

A. 14 cm
B. 26 cm
C. 34 cm
D. 120 cm
E. 676 cm

51. If a round pie is cut into 8 pieces, what is the measure of the central angle of each piece?

A. 8°
B. 22.5°
C. 45°
D. 90°
E. 180°

52. Which of the graphs below represents the inequality $-2 \leq x < 4$?
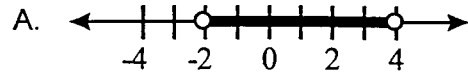
E. none of these

53. A room measures 4 yards by 6 yards. Carpet selected to be laid in the room costs $29 per square yard, including pad and labor. What is the best estimate of the total cost of the carpeting?

A. $600
B. $650
C. $700
D. $750
E. $800

54. According to the table below, what is the total amount of protein contained in two boiled eggs and one-half cup of whole milk?

Nutritional Value of Certain Foods

	Measure	Cals	Protein	Carbs
Banana, raw	1	100	1	26
Beef hamburger	3 oz.	245	21	0
Whole Milk	1 cup	160	9	12
Doughnut	1	125	1	16
Eggs, boiled	1 egg	160	13	1

A. 14
B. 17.5
C. 22
D. 30.5
E. 35

55. Which of the following numbers can __NOT__ be used to express a probability?

A. $\dfrac{8}{9}$

B. $\dfrac{2}{3}$

C. 15%

D. 115%

E. 0

56. How many buses must be ordered to take 90 band students to the football game? Each bus can only hold 25 students.

A. 2 buses
B. 3 buses
C. 4 buses
D. 5 buses
E. 6 buses

57. Chef Robo has prepared five main courses, six vegetables, and three desserts. How many different dinners can he serve if a meal includes one main course, one vegetable, and one dessert?

A. 14
B. 18
C. 30
D. 90
E. 120

58. If $n + 7$ represents an even number, the next larger even number is represented by the equation

A. $n + 2$
B. $n + 8$
C. $n + 9$
D. $10n + 7$
E. $2n + 7$

Nevada High School
Proficiency Examination
Math
Form A Released
Answers

1.	E	21.	C	41.	C
2.	D	22.	A	42.	A
3.	B	23.	C	43.	C
4.	C	24.	A	44.	E
5.	B	25.	B	45.	E
6.	D	26.	C	46.	D
7.	C	27.	B	47.	C
8.	A	28.	C	48.	D
9.	B	29.	D	49.	D
10.	B	30.	B	50.	B
11.	C	31.	C	51.	C
12.	E	32.	B	52.	C
13.	C	33.	D	53.	C
14.	D	34.	C	54.	D
15.	C	35.	C	55.	D
16.	B	36.	D	56.	C
17.	D	37.	C	57.	D
18.	D	38.	C	58.	C
19.	D	39.	E		
20.	C	40.	B		