

Name _____

**Moraine Valley Community College MTH120: General Education Math
Departmental Final Exam: 40 questions. 10 questions from each unit.**

Directions: Please read carefully before starting the exam.

- 1. Be sure to put your name on the exam.**
- 2. You can write on the exam. Use scratch paper if needed. Be sure to hand in the scratch paper with the exam. No credit is given for problems without their work. Be sure to number the problems that are on scratch paper and circle your answer. Round your final answer to match the choices. Circle the correct letter! (2.5 points each)**

1. Find the future value of an account that starts with a deposit of \$6,100 at 4.8% simple interest for 11 months.
A. \$268.40 B. \$3,220.80 C. \$6,368.40 D. \$9,320.80
E. None of these

2. How much money will be in an account that starts with a single deposit of \$4,800 at 3.1% interest compounded continuously for 18 years.
A. \$8,386.62 B. \$8,386.44 C. \$8,386.24 D. \$8,380.41
E. None of these

3. How much money must be deposited once into an account so that in 25 years the account will have \$18,000. The account earns 5.6% interest compounded monthly.
A. \$7,500.00 B. \$4,849.79 C. \$4,609.72 D. \$4,453.22
E. None of these

Use for #4-5. A Chevy Volt costs \$41,995 cash or 10% down and the remainder is financed at 3.78% for 6 years.

4. If you put 10% down, what is the remainder amount that is financed?
A. 4,199.50 B. 1,587.41 C. 37,795.50 D. 40,407.59 E. None of these

5. Find the monthly payment using the amortization formula.
A. \$715.55 B. \$652.82 C. \$643.99 D. \$587.54 E. None of these

6. Charlotte deposits \$500 monthly into a 401(k) savings plan. The account earns 5.6% interest compounded monthly. How much money will be in the account after 32 years?
A. \$89,215.44 B. \$192,000.00 C. \$533,194.20 D. \$548,964.40
E. None of these

7. Natalia plans to make monthly deposits for 2 years into an account that pays 1.5% interest compounded monthly. How much money must Natalia deposit monthly, in order to save \$12,480 for the closing on a condominium near the lake?
A. \$508.79 B. \$512.56 C. \$520.00 D. \$528.16 E. None

8. Andre' wants to receive \$7,900 a month for 30 years. The money resides in an account that pays 5.4% compounded monthly. How much money must be in the account for this to occur?

A. \$1,406,868.53 B. \$1,979,380.31 C. \$2,844,000.00
D. \$7,083,245.68 E. None of these

9. Find the rate of a simple interest account, if the deposit of \$4,500 grew to \$6,200 in 3 years.

A. 5.66% B. 12.59% C. 45.93% D. 37.77% E. None of these

10. Due to the slump in the economy, Jenny's mutual fund has dropped 15% from last quarter to this quarter. If her fund is now worth \$20,000, how much was her fund worth last quarter?

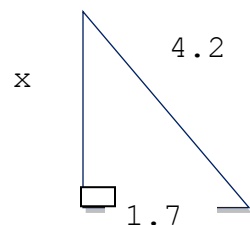
A. \$17,000 B. \$23,000 C. 23,529.41 D. \$17,391.30 E. None of these

11. A rectangular room measures 9 feet 7 inches by 12 feet 5 inches. How much carpeting (square yards) is required to cover the floor?

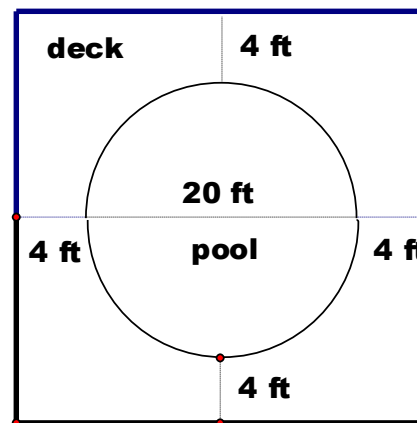
A. 5 sq yds B. 13 sq yds C. 14 sq yds D. 40 sq yds
E. None of these

12. Find the length of the missing side, x.

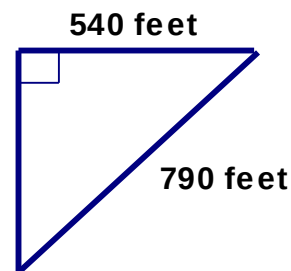
A. 3.84 B. 4.53 C. 14.75 D. 20.53
E. None of these



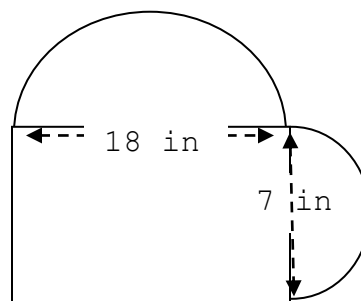
13. A wooden pool deck is going to be constructed around the pool. What is the area of the deck if the pool diameter = 20?
- A. 469 to 470 sq ft B. 658 to 659 sq ft
 C. 721 to 722 sq ft D. 784 sq ft
 E. None of these



14. The rooftop of a right triangular building is going to be used by the residents for gardening, sunbathing, parties, etc. An iron fence railing is going to be installed along the perimeter of the rooftop. How much railing is required? Round :0)
- A. 577 feet B. 1,870 feet C. 1,907 feet
 D. 155,590 feet E. None of these



15. Find the perimeter of shape- outside edges And curves only, using inches.
- A. 50 B. 64.27 C. 103.27 D. None



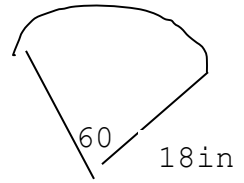
16. Using same shape in #15, find the area (using square inches)
- A. 126 B. 272.47 C. 418.95 D. None

17. Find the area of the sector (using sq in.)

It is a sector with radius of 18in and a central angle of

60 degrees. That is "SUPPOSED" to be a curved edge 😞

- A. 9.42 B. 18.85 C. 42.41 D. 169.65 E. None



18. Find the volume of a cylinder with radius of 5cm and height of 13cm-using cubic cm.

- A. 340.34 B. 523.60 C. 1021.02 D. 2654.65 E. None

19. Find the area of the shaded region-using sq inches

- A. 120 B. 240 C. 60 D. 30



20. A punch bowl is in the shape of a hemisphere with a radius of 12in. The cup part of a ladle is also in the shape of a hemisphere with a radius of 5in. If the bowl is full, how many FULL ladles of punch are in the bowl?

- A. 5 B. 6 C. 13 D. 14 E. None

21. The American Heart Association did a survey on the various causes of death. What percent of people dies of lung disease?

Cause of Death	Millions
Heart Disease	989
Cancer	793
Lung Disease	249
Accidents	97
Pneumonia	79
Diabetes	59
Other	104

- A. .1051% B 10.51% C. .2518% D. 25.18% E.None

22. Given the following data table below, what percent of people's income is at least 200,001?

Income	Frequency
\$0 - \$50,000	1
\$50,001 - \$100,000	3
\$100,001 - \$150,000	4
\$150,001 - \$200,000	8
\$200,001 - \$250,000	5
\$250,001 - \$300,000	2
\$300,001 - \$350,000	1

- A. 20.83% B. 33.33% C. 66.67% D. 50.00% E.None

Use the following information for Questions 23 through 26.

\$12,480 \$13,400 \$17,000 \$19,480 \$20,000 \$24,900 \$27,900
\$30,000 \$31,790 \$34,900 \$42,900 \$57,400 \$61,480 \$79,610

23. What is the mean?
 A. 33802.86 B. 473240 C. 28950 D. 79610 E. None of these
24. Use you calculator to find the **SAMPLE STANDARD DEVIATION**
(No work has to be shown for this problem.)
 A. \$19,147.75 B. \$19,974.34 C. \$28,450.00 D. \$33,802.86
 E. None of these
25. What is the value of the median?
 A. 27900 B. 30000 C. 28950 D. 33802.86 E. None
26. What is the value of the first quartile?
 A 17,000 B. 19,480 C. 20,000 D. 27,900 E. None

27. Using a z table, find the area to the RIGHT of 0.53

- A. 0.7019 B. 0.2981 C. 0.6985 D. 0.3015 E. None

28. Using a z table, find the area between **-2.9 and .3**

- A. .3802 B. .9962 C. .9981 D. .6160 E. None

Use of 29&30: Suppose time spent by kids on their iphones per year is normally distributed with the mean of 1800 hours and the standard deviation of 150 hours.

29. Find the percent of kids that spent more than 1975 hours on their phones?

- A. 1.17% B. 12.10% C. 87.90% D. 67.00% E. None

30. Find the time spent by kids on their phones, which only 33% of the kids exceed? Round to nearest hour.

- A. 652 B. 1734 C. 1866 D. 1850 E. None

In a small town it was found that 25% of the population had a fever", 40% had a cough, and 13% had BOTH a fever and a cough. Use for #31-33.

31. Find the probability that a randomly selected person from that small town will either have a fever OR a cough?

- A. 0.65 B. 52% C. 40% D. 8.45% E. None

32. Find the probability that a randomly selected person from that small town does NOT have a fever?

- A. 75% B. 40% C. 60% D. 48% E. None

33. Find the probability that a randomly selected person from that small town ONLY has a COUGH?

- A. 40% B. 27% C. 12% D. 13% E. None

Use chart for #34-38

	A	B	C	D	Total
Math	5	3	4	2	14
Science	3	7	8	3	21
English	1	2	3	4	10
Totals	9	12	15	9	45

34. Find the probability that a randomly selected student will take science AND get a B in a class.

- A. 15.56% B. 33.33% C. 58.33% D. 57.78% E. None

35. Find the probability that a randomly selected student will take math OR get an A in a class.

- A. 11.11% B. 55.56% C. 35.71% D. 40.00% E. None

36. Find the probability that a randomly selected will take English, given that a student has earned a D in a class.

- A. 8.88% B. 33.33% C. 42.22% D. 44.44% E. None

37. According to chart above, are math and science complementary events or not-complementary?

- A. Complementary events B. Not-complementary

38. According to the chart above, are math and science disjoint events, or not-disjoint events?

- A. Disjoint events B. NOT-Disjoint events

You have a bag of candy that has 5 yellow, 6 red, 4 green, and 2 blue. Use for #39-40

39. If you randomly select a piece of candy, what is the probability it is green?

- A. 29.4% B. 35.29% C. 23.53% D. 11.76% E. None

40. If you randomly select 2 pieces of candy WITHOUT replacement, what is the probability that the first candy is blue, and then the second candy is yellow?

- A. 3.46% B. 3.68% C. 41.18% D. 43.01% E. None