

## Grade 12 Essential Mid Term Practice Questions

Some sample questions to practice with.

Assume taxes are: 5% GST and 8% PST unless otherwise indicated, but the first few finance questions are based on the old 7% PST. 7% will be coming back soon! Jul 2019

If you do not recognize a problem it is likely because we had not covered that unit yet.

See the back page for some typical errors!

Round decimal and percent answers to the nearest 0.01 where necessary

Use your single sheet Reference Notes (Cheat Sheet)

Use your calculator to its full effect (unless otherwise indicated to do manually)

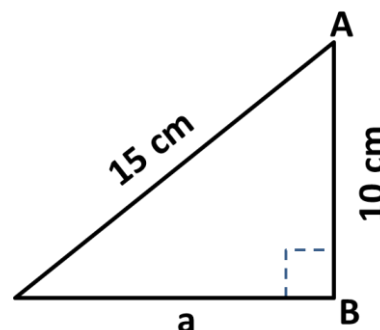
### Part 1: Multiple Choice (two marks each)

Circle the letter of the **best** or **closest** answer

Diagrams are not necessarily to scale

1. The length of side a is [Grade10, 11]:

- a. 25 cm
- b. 10 cm
- c. 5 cm
- d. 11.18 cm



2. The mean and median of the data at the right is:

**{3, 5, 7, 7, 2, 1, 14}**

- a.  $\bar{x} = 5.57$ ;  $\tilde{x} = 5$
- b.  $\bar{x} = 7.5$ ;  $\tilde{x} = 3$
- c.  $\bar{x} = 39$ ;  $\tilde{x} = 5$
- d.  $\bar{x} = \text{nil}$ ;  $\tilde{x} = 7$

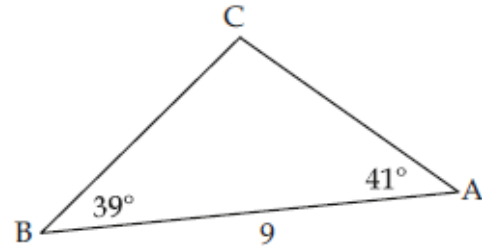
7. If Jayson drives 4500 km and uses 360 L of gas, what was his vehicle's fuel economy?

- a. 8.0 km per litre
- b. 12.5L/100 km
- c. 8.0 L/100 km
- d. 0.08

8. Simplify  $4\frac{2}{3} - 1\frac{1}{4} =$
- a.  $7\frac{7}{8}$    b.  $3\frac{3}{8}$    c.  $3\frac{5}{12}$    d. none of these
13. A car's value decays exponentially as it depreciates. If a \$46,000 car has a 20% rate of depreciation then the value of the car after eight years is:
- a. \$45,840      b. \$7720      c. \$36,800      d. \$0.12
16. Beyond what percentage of TDSR will a lender likely decline to give you a loan?
- a. 20%      b. \$32      c. \$2300/month      d. 32%
17. Data that has an 'outlier' or 'outliers' is data that has:
- a. some really big values  
b. value(s) that don't fit closely with the others  
c. low deviation or variance  
d. decimals and blue polka dots
18. If John has a gross income of \$36,000 per year and presently has monthly debts (rent, heat) of \$800 per month. Using the TDSR calculation, what maximum amount of extra monthly debt will he likely be allowed to finance a car?
- a. \$160/month      b. \$200 / month  
c. \$2,200 / month      d. He is already overload with debt, no car!

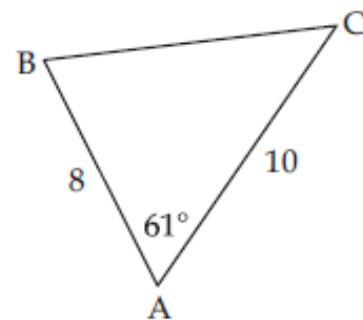
## Questions from Distance Learning (available on the website)

1. Find the missing measures indicated.  
Find the measure of side a.  
(Did this in Grade 11)



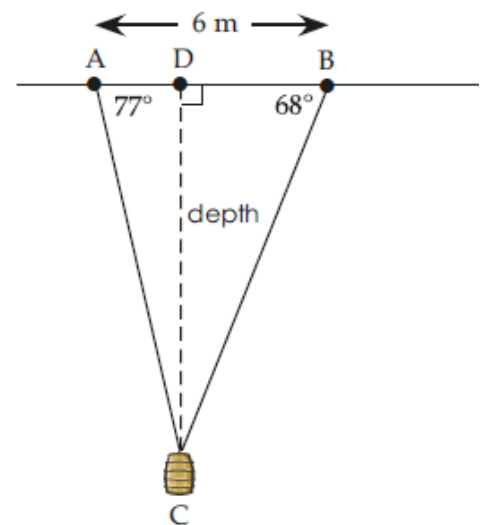
ANS: 5.995

2. Find side a, and angle B. (Cosine Law)  
(Did this in Grade 11)



ANS:  $70.1^\circ$

3. Two ropes are being used to raise a heavy object from the bottom of a lake. The heavy object (point C) is between points A and B. How far is the heavy object below the surface of the water if the distance between A and B is 6 metres? Round your answer to one decimal place. (Did this in Grade 11)



ANS: Depth = 9.5 m

4. In a class of 32 students where they each take one option, 18 students take an Art option, 10 other students take a Drama option, and the rest of the students take a Choir option. One student is selected at random. Find the following:

- the odds in favour of the selected student taking Drama
- the odds against the selected student taking Choir
- the odds in favour of the selected student either taking Art or Choir
- the probability of the selected student either taking Art or Choir

ANS: a. 5 : 11 b. 7:1 c. 11:5 d. 11/16

5. The odds against a spring flood in Winnipeg are **6 : 7**.

- What are the odds in favour of a spring flood in Winnipeg?
- What is the probability of a spring flood in Winnipeg?

ANS: a. 7 : 6 b. 7/13

6. Keira studied how often Friday the 13th occurs over a period slightly longer than 13 Years. The following chart indicates her data showing how often the 13th day of the month falls on each of the seven days of the week.

Day of the Week	S	M	T	W	T	F	Sa
How Often the 13th Occurs	687	685	685	687	684	688	684

- Find the probability that the 13th day of the month occurs on a Friday. Express this probability as a percent, decimal (rounded to two decimal places), and a fraction.
- Find the probability that the 13th day of the month does not occur on a Friday. Express this probability as a percent.
- Is this an example of theoretical probability or experimental probability? Explain.

ANS: a. 14.33% b. 85.67% c. experimental

7. State an example of a situation where you would use the following type of probability to predict an outcome or make a decision:

- Theoretical probability
- Experimental probability
- Subjective probability (just based on your own experience, not necessarily one you can put a number to)

ANS: varied

8. An expert is to make a decision about the safety of the design of a vehicle. What kind of probability will be used as a basis for the decision? Explain.

ANS: The expert will use experimental probability.

9. Consider the following game. It costs \$5 each time you draw a card from a shuffled standard deck. If you draw an ace, you win \$50. If you draw a king, you win \$25. If you draw any other card, you receive nothing.

This expected value chart is included in this question. Use it only if you find it helpful.

Event	Probability	Amount Won	Cost of Playing	Payoff	Probability x Payoff
Ace					
King					
Other Card					

- Determine your expected value of the game.
- If you play this game 15 times, how much money can you expect to gain or lose?
- Is this a fair game? Explain why or why not.

ANS: a. \$0.77 b. You can expect to gain \$11.55 c. This game isn't fair. Fair games have an expected value of 0

10. Earna Wheeler is able to make a down payment of \$4000 on a two-door sedan she purchases for \$23,457, including taxes. In order to finance the remaining portion, she takes out a three-year car loan at a fixed interest rate of 8.5%.

- a) Calculate her monthly payment for the two-door sedan.
- b) Calculate her deferred payment for the two-door sedan. (I did not teach deferred payments, they are not a good idea to do regardless!)
- c) Calculate her finance charge (how much interest she paid) for the automobile.

ANS: a. \$614.26 b. c. \$2656.36

11. A four-wheel-drive vehicle sells for \$28,750, plus taxes, and leases for \$378 per month plus taxes for a lease term of 24 months. A down payment of \$5000 is required. The guaranteed residual value of the vehicle [at the end of the lease] is 60% of the sales price.

- a) Calculate the *total of the* monthly leasing payments.
- b) Calculate the total amount paid by the end of the lease.
- c) Calculate the total residual value of the four-wheel-drive vehicle, including taxes.
- d) Calculate the total cost of the vehicle if it is purchased outright at the end of the lease.
- e) Calculate how much the vehicle depreciates in two years.

(caution some of these are based on the old tax of 7% instead of 8%)

ANS: a.  $\$378 \times 1.12 = \$423.36$  b.  $(\$423.36 \times 24) + \$5000 = \$15,160.64$  c.  $\$17,250 \times 1.12 = \$19,320$

d.  $\$15,160.64 + \$19,320 = \$34,480.64$  e. loses \$10,350 of value

12. Rosa wants to purchase a used car sold privately. The price the vendor is asking is \$5500. A lien search costs \$4, and a diagnostic test costs \$35. The technician reports that the car needs the following repairs: suspension, \$350; and tires, \$680. A safety check costs \$45. Calculate the total purchase price of this car if the book value is \$5475 and she pays for all the repairs to make it road worthy.

13. Before purchasing a used vehicle privately, name two searches, tests, or checks that you should do. Explain why each should be done.

Did not cover? But you should have seen in a movie perhaps?

14. A pick-up truck travels 72 km on 10 L of gasoline when driven on a smooth, paved road. The truck is only able to travel 48 km on the same amount of gasoline when driven on a gravel road.
- Determine the fuel consumption rate of the truck on the paved road.
  - Determine the fuel consumption rate of the truck on the gravel road.
  - What is the percent increase in fuel consumption rates when driving on paved roads instead of gravel roads?
  - Calculate the cost of 3500 km of highway (smooth, paved road) if the cost of gasoline is \$1.23/L. (Taxes are included in the posted price of fuel because there are so many!)

**ANS: a. 13.9L / 100 km b. 20.8 L/100km c. 49.6% d. \$598.40**

15. Brett is a motorist living in Territory 3. He owns a 2011 Toyota Camry Hybrid. He uses the vehicle for personal use only. He currently has 0 merit points
- Calculate his 2011 Autopac rate.
  - If he obtains one more merit from safe driving this year, what will be his Autopac rate next year? Assume the rates stay the same and still use the 2011 Basic Rate Table.

**OMIT (you need a website to do this, plus rules have changed)**

16. Mercedes is debating whether to buy a new or used vehicle. She has recently acquired a full time job as a receptionist. However, she lives in Steinbach and has to commute one hour to Winnipeg for her new job every day. Discuss at least two factors that might influence Mercedes' decision on whether to buy a new or used vehicle.

Ans: VARIOUS ANSWERS

17. Haley scores 47% on her law exam. A total of 382 students, including Haley, wrote the same exam. There were 36 other students received the same score that she did, but 244 received a lower score.

- a) Find Haley's percentile rank.
- b) Explain the difference between Haley's percentile rank and the percent mark she receives on the exam.

**ANS: a. 69<sup>th</sup> percentile b. various**

18. State one advantage and one disadvantage of using the trimmed mean as a measure of central tendency.

**ANS: various**

19. Valerie scores 58% on a recent test. However, her percentile rank on the test was 92.

- a) What can you conclude about the success rate of most of the other students who have written the test?
- b) Explain why the test results might be like this.

**ANS: a. 92% of the students who wrote the test scored the same as or lower than Valerie**

**b. One reason could be that the test was very difficult. A second reason could be that the students were not prepared for the test**



20. A stats person for a professional football team decides to track the number of touchdown passes thrown by the quarterback during a period of 20 games. She records the following numbers of touchdown passes during each game.

1	3	2	1	2	2	1	4	3	2
7	3	4	0	5	3	4	1	2	3

- Calculate the mean of the number of touchdown passes per game.
- Calculate the 10% trimmed mean of the number of touchdown passes per game.
- Identify the outlier(s) in this set of data.
- Does the 10% trimmed mean get rid of the influence of outliers from this set of data? Explain.
- Calculate the range of the data

**ANS: a. 2.65 b. 2.56 c. 0 and 7 d. various e.**

21. For the following set of numbers:

**124, 210, 318, 124, 198, 342, 180**

- Find the mean, median, and mode and range.
- Add the number 10 to the set. Find the mean, median, and mode of this new set of numbers.
- How does adding a low outlier affect the mean, median, and mode of this data?
- Which of the three measures of central tendency is most influenced by an extreme score?

**ANS: a. 213.7 , 198, 124 b. 188.25 , 189, 124 c. various d. mean**

22. [Weighted Mean]. Cassidy is trying to figure out what her mean monthly phone bill was for the previous year. For four months, her phone bill was \$52 a month. For the other eight months in the year, her phone bill was \$63 a month. Since the mean of \$52 and \$63 is \$57.50, Cassidy states that her mean phone bill for the previous year was \$57.50. Is her reasoning correct? Explain.

**ANS: No, her reasoning is incorrect. the actual mean is \$59 33. Can't average averages!!**

23. [Weighted Mean]. Keegan is taking an Independent Study Grade 12 Physics course. He has received a mean mark of 86% on his assignments, 77% on his midterm exam, and 65% on his final exam. Assignments are worth 50% of his final mark, while the midterm exam is worth 20% and the final exam is worth 30%. Determine Keegan's final mark in this course.

**ANS: 77 9%**

**From Past Provincial Exams  
(available on line with full solutions and answers))**

24. There are 12 red and 28 blue marbles placed in a box.

A) State the probability of randomly selecting a red marble.

B) State the odds against choosing a red marble.

**ANS: a. 30% or 3/10 b. 28 : 12 or 28 to 12**

25. State the probability of randomly choosing the letter "B" from the letters in the word "probability."

**P R O B A B I L I T Y**

**ANS: 2/11 or 0.18 or 18% or two out of eleven or 2 : 11**

26. Howard spends \$1.55 on each food sample he gives away at his restaurant. There is an 8% chance that after tasting the sample, the customer will order the new menu item. Howard earns \$20 for every new menu item he sells.

- A) Determine the expected value of the food sample.
- B) Justify whether Howard should be offering the food samples based on the expected value.

**ANS: a. \$0.05 b. Yes, his expected value is greater than 0**

27. Random testing of golf balls shows that 100 out of every 5000 are defective.

- A) State the odds in favour of a golf ball being defective.
- B) State the probability of a golf ball not being defective.
- C) A company produces 80 000 golf balls. State the expected number of defective golf balls.

**ANS: a. 100 : 4900 or 100 to 4900 or 1 : 49 preferred! b. 0.98 or 98% or equivalent fraction  
c. 1600**

28. The Teddy Bear Factory hosts birthday parties where children can build their own teddy bears. They offer 4 different party packages that are equally likely to be chosen. Their sales during the last month were as follows:

Red package: 18  
Blue package: 34  
Green package: 16  
Yellow package: 12

- A) The Smith family would like to book a party. State the experimental probability that the Smith family will choose the yellow package.
- B) State the theoretical probability that the Smith family will choose the yellow package.

**ANS: a. 12/80 or 3/ 20 or or 0.15 or 15% or 12:80 or 12 out of 80  
b. 1/4 or 0.25 or 25% or 1 4 or 1 out of 4**

29. Describe 2 disadvantages of leasing a new car.

**ANS: various**

30. Carter is purchasing a new vehicle for \$27 800, *after taxes*. He makes a down payment of \$3000. The bank offers financing for 5 years at a rate of 6.25%. [Loan Payment Table at Appendix]

A) Calculate the monthly payment.

B) Calculate the total paid for the vehicle by the end of the 5-year term.

**ANS: a. \$482.36 b. \$31,941.60**

31. Paige is planning to go on a 3000 km road trip. She owns a truck and a car. The truck uses 8.5 L of fuel per 100 km. The car uses 6 L of fuel per 100 km.

A) State which vehicle Paige should use if she wants to get the best fuel economy.

B) State the number of litres used during the trip by the vehicle selected in Part A.

C) State the total cost of fuel for the trip if gas costs \$1.23/L (gas prices always include taxes since there are so many different taxes involved).

**ANS: a. The car b. 180 L c. \$221.40**

35. Desarae is purchasing a vehicle in Manitoba through a private sale for \$12 000. A lien search was done for \$18. The 'book value' of the vehicle is listed as \$13 500. Desarae has a safety check performed for \$40. Calculate the total cost of purchasing the vehicle after taxes using the table below.

Answer: \$13,003

[BTW, used cars are not subject to GST, only PST! You pay the PST when you register the vehicle. See below But I do not get that complicated in our lessons]

I never got into this much detail. Besides the tax rules change it seems every year or two

	Taxes on Vehicle Purchases	
	PST	GST
Buying New	PST	GST
Buying Used from Dealership	PST calculated on greater of book value or purchase price	GST
Buying Used (Private)	PST calculated on greater of book value or purchase price	No GST
Safety	No PST	GST
Materials and Labour	PST	GST
Lien Search	No PST	No GST

36. Nicole is calculating her final mark in an Essential Mathematics course. Her projects are worth 45%, her tests are worth 35%, and her final exam is worth 20%.

Nicole earned:

- 40% on her projects
- 60% on her tests
- 75% on her final exam

Calculate her final mark using a weighted mean.

ANS: 54%

37. Explain the difference between Jill receiving 80% on a test and being in the 80th percentile for the same test.

**ANS: various**

38. Using the following data:

63	47	88	91	76
41	51	74	76	83

- A) State the mean.                      B) State the median.  
 C) State the mode.                      D) The range

**ANS: a. 69 b. 75 c. 76 d. 50**

39. The probability of Billy scoring a basket is 6 out of 8. State Billy's success rate as a fraction and as a percent.

- a. Fraction:  
 b. Percent:

**ANS: 3 / 4 75%**

40. Jonas is experimenting with pulling blocks out of a bag. There is an equal number of red blocks, yellow blocks, and blue blocks.

- A) State the theoretical probability of pulling out a yellow block.  
 B) After repeating the experiment several times, Jonas pulled a red block 7 times, a yellow block 3 times, and a blue block 2 times. State the experimental probability of pulling a yellow block.

**ANS: a. 1/3 or 0.33 or 33% or one out of three or 1 : 3  
 b. 0.25 or 25% or 1 / 4**

41. It would cost \$1000 for a contractor to bid on a construction project. There is a one in four chance that she will win the contract. If she is awarded the contract she will be paid \$3000 for the work.

A) Calculate the expected value.

B) Justify whether she should bid on the contract based on the expected value calculated in Part A.

**ANS: a. -\$250 b. No, the expected gain is negative, therefore, she should not bid on the project**

42. The weather forecast states that there is a 30% probability of rain for tomorrow. State the *odds against* it raining tomorrow.

**ANS: 70 : 30 or 70 to 30**

43. The manager of a clothing company collects the following sales data for the winter season.

<b>T-shirt colours</b>	<b>Red</b>	<b>Yellow</b>	<b>Green</b>	<b>Blue</b>
<b>Number purchased</b>	111	140	204	145

A) State the probability that a customer purchased a green T-shirt based on the sales data presented above.

B) The manager of the store needs to order 9000 T-shirts for next year. State how many green T-shirts the manager should order based on the above sales data.

**ANS: a. 34% b. 3060 green t-shirts**

44. Bonnie wishes to buy a new vehicle from a Manitoba dealership for a price of \$16 200 before taxes. She has \$5000 saved for a down payment and will finance the remainder.

A) Calculate the amount Bonnie needs to borrow to purchase the vehicle.

B) Bonnie can get a loan for 4 years at 5.5%. Calculate the amount of interest in the first month's payment.

**Ans: a. \$13,306 b. Her monthly loan payment is \$309.45 (from an App) and \$106.92 of that is the interest in the first month.**

50. A car travels 2400 km and consumes 200 L of fuel. Calculate the fuel economy in L/100 km for the car.

**ANS: 8.3 L / 100km**

51. Frank has been leasing his pickup truck for the last 3 years. He has made a total of \$16 028 in payments; which included a down payment of \$3500. Calculate Frank's monthly lease payments.

**ANS:  $\$12\,528 / 36 = \$348$**

52. A brand new car costs \$26 800 after taxes. It will depreciate 15% in the first year. Calculate the value of the car after the first year.

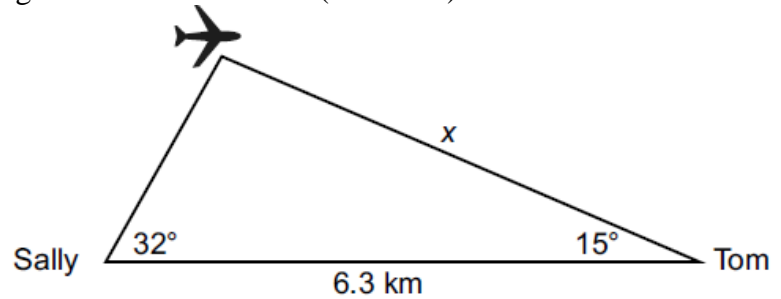
**ANS:  $\$26\,800 * 0.85 = \$22\,780$**

53. Sylvie takes her car in for a seasonal maintenance checkup at a Manitoba dealership. In addition to the basic \$60 'admin' fee, Sylvie gets an oil change for \$50, and a new set of brake pads for \$80. The mechanic spends 1.5 hours working on the vehicle at a rate of \$90 per hour. Calculate Sylvie's total bill, after taxes. (7% and 5%)

**ANS: \$367.25**



56. Sally spots an airplane in the sky flying away from her at an angle of elevation of  $32^\circ$ . At the same time, Tom who is 6.3 km away from Sally sees the same airplane flying towards him at an angle of elevation of  $15^\circ$  (Grade 11)



ANS:  $x = 4.6$  km

57. A company states that the theoretical probability of manufacturing a defective calculator is 1.3%. Natalie samples 200 calculators and finds that 4% of them are defective. She immediately takes a second sample of 1000 calculators and finds that 1.8% of them are defective.

**Natalie's Results**

	<b>Sample Size</b>	<b>Percent Defective</b>
Sample 1	200	4%
Sample 2	1000	1.8%

**Explain** why her second sample is closer to the theoretical probability than her first.

Ans: Various written response as a correct sentence or two.

60. The probability of being selected as a jury member is 0.07. Calculate the probability, in decimal form, of not being selected.

Ans: 0.93

61. State the **Odds Against** a soccer game ending in a tie score if the probability of a tie is  $\frac{9}{225}$

Ans: 216 :9

62. The probability of having green eyes is 3 out of 25.  
Calculate the expected number of people who have green eyes in a group of 150 people.

Ans: 18 can be *expected* to have green eyes.

63. “Pick the Marble” is a game that involves picking one marble out of a bag. In the bag, 32% of the marbles are red, 4% are green, and 64% are blue. It costs \$2 to play, and the prizes are listed in the table below.

Colour	Probability of Winning	Prizes
Red	32%	Stuffed animal valued at \$10
Green	4%	Stuffed animal valued at \$15
Blue	64%	Nothing

- a. Calculate the expected value for the game.
- b. Why is this a dumb game?

Ans: \$1.80 . Dumb because the player can expect to win more than he loses!

64. Each letter of the word **MULTIPLICATION** is written on a different card. The cards are shuffled and placed face down on a table. One card is selected and then replaced.

- A) State the probability of selecting a card with the letter L or P
- B) State the odds in favour of selecting a card with the letter A
- C) State the odds against selecting a card with a vowel (A, E, I, O, U)

Ans: A)  $\frac{3}{14}$  or 0.21 or 21.43% or three out of fourteen

B) 1 : 13 or 1 to 13

C) 8 : 6 or 8 to 6 although technically this should be reduced to 4 : 3

65. Jean is financing the purchase of a new vehicle. She has saved money for the down payment. The table below shows the details of the purchase.

Price of new vehicle	\$26 000
Trade-in value of current vehicle	\$2000
Tax	\$3120
Down payment	\$3000
Monthly payment	\$544.39
Term	48 months

- A) Calculate the total amount borrowed.  
 B) Calculate the total monthly payments paid over the term of the loan.  
 C) Calculate the finance charge (interest).

Ans: A) \$24 120

B) \$26 130.72

C) \$2010.72

66. José and Shurjeel went on a road trip and recorded the following information:

	Distance Driven	Amount of Gas Used	Cost
Monday	1200 km	45 L	\$49.50
Tuesday	800 km	38 L	\$19.00
Wednesday	1400 km	47 L	\$34.00
Total	3400 km	130 L	\$102.50

- A) Calculate the fuel economy for the trip in L/100 km  
 B) Calculate the cost of gas per litre for the trip

ANS: A) 3.82 L/100 km \*\*Must be a hybrid!!! Most cars are 7 to 12 L/100 km\*\*

B) \$0.79/L

70. Financial institutions use credit scores to decide whether people qualify for a loan. Below is a list of credit scores for people applying for a bank loan.

<b>620</b>	<b>655</b>	<b>706</b>	<b>722</b>	<b>722</b>
<b>768</b>	<b>775</b>	<b>778</b>	<b>780</b>	<b>784</b>
<b>784</b>	<b>800</b>	<b>803</b>	<b>816</b>	<b>824</b>
<b>824</b>	<b>831</b>	<b>840</b>	<b>849</b>	<b>852</b>

Calculate the percentile rank for a credit score of 800.

ANS: 55 or P<sub>55</sub> or 55<sup>th</sup>

71. Guess and Check. The sum of two sisters' ages is 40, the product (ie: multiply their ages) of their ages is 384. How old is the younger sister?

Ans: the younger sister is 16

72. Solve for the unknown, x: Demonstrate proper algebra

a.  $2x + 6 = 30$

b.  $80 < \frac{50+70+100+x}{4}$

Ans: a.  $x = 12$ ; b.  $x > 100$

73. Complete the table blanks:

TDSR %	Debt				Gross Income
	Rent	Heat	Other	Loan (?)	
	\$900 / month	\$80 / month	\$200/month	\$250 / month	\$32,000/yr plus \$480 / month Canada Child Benefit
	\$1100 / month	\$70 / month	0	\$225 / month	\$1650 bi-weekly
40%	\$245 / week	0	0	<b>Solve</b> :How much loan is possible?	56,000 per year
40%	\$1,100 / month	\$65 /month	\$ 250 / month	<b>Solve</b> : How much loan is possible?	\$2500 / month
	\$170 / week	0	0	\$200	\$3,000 / month

74. Given the table of data below:

2	4	4	8	5
2	4	3	2	5
5	2	5	4	4
4	6	7	5	1

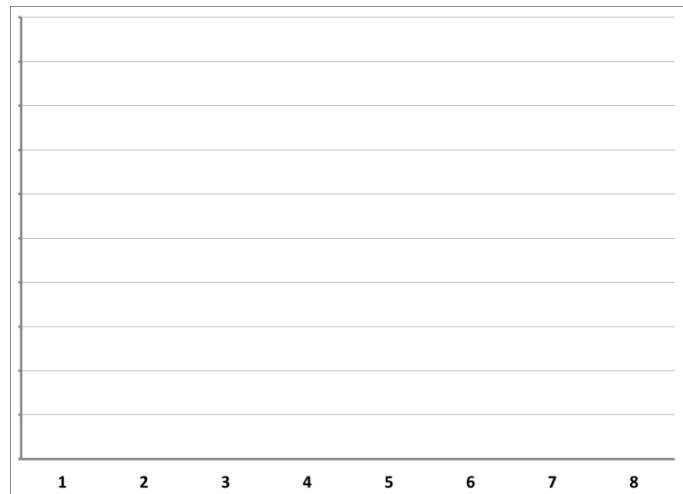
- Draw a proper histogram
- Calculate the :

Mean: \_\_\_\_\_

Median: \_\_\_\_\_

Mode: \_\_\_\_\_

Range: \_\_\_\_\_



**75. Problem Solve.** Mark weighs half as much as his father. If Mark weighs 76 pounds, how much does his father weigh?

Ans: His father weighs 152 lbs

**76. Problem Solve.** Karen's uncle said, "If you add 10 to my age, and then double the sum, the result is 90." How old is Karen's uncle?

Ans: 35 years old

**77. Problem Solve:** A subway train left downtown with 121 passengers aboard. At the first stop, 1 person got off. At the second stop, 3 people got off. At the third stop, 5 people got off. At the fourth stop, 7 people got off. If this pattern continues:

- A. How many people will get off at the 7th stop?
- B. How many stops will the train have made when all the passengers are off?

Ans: 13 people at 7<sup>th</sup> stop, 11 stops till empty

**78. Problem Solve.** A farmer has chickens and cows. He has 30 more chickens than he does cows. If he adds up all their legs the sum is 120 legs. How many chickens and cows does the farmer have?

Ans: 40 chickens, 10 cows.

## Communication Errors

Communication errors are errors not conceptually related to the learning outcomes associated with the question. The following communication errors will result in a 0.5 mark deduction. Each error can only be deducted once per test

### E1 (Final Answer)

- final answer not **clearly** indicated (e.g.,  $3/4$  and  $3:1$  presented, but final answer not indicated). Box it, label it!!
- answer is presented in another part of the question. SO make sure question b is answered as question b.
- too much information is presented in the answer and the information is numerically and conceptually correct ! lol, Jeanelle likes to give two answers!!

### E2 (Notation)

- dimensions written in an alternative form than requested (if we ask for metres, give the measure in metres)
- answer expressed in an alternative form than requested (e.g., express probability as a percentage and student gives a decimal form)
- incorrect application of percent symbol! Eg:  $0.33\%$  is not  $33\%$

### E3 (Transcription/Transposition)

- makes a transcription error (inaccurate transferring of information from one part of the page to another) You calculate  $3.14$  but write down  $3.41$

### E4 (Whole Units)

- does not use whole units in contextual questions involving discrete data (e.g., people, cans of paint, percentile rank) You cannot have  $3.56$  people

### E5 (Units)

- uses incorrect units of measure
- does not include units in final answer (e.g., missing dollar sign for monetary values, missing degrees for angles)
- answer stated in gradians or radians instead of degrees

### E6 (Rounding)

- rounds incorrectly
- rounds too soon Do not round too much in the middle of calculations, three rounded numbers smashed together can give a really really erroneous final answer)
- does not express the answer to the appropriate number of decimal places (e.g., monetary values are not expressed to two decimal places). We almost always say decimals and percents to the nearest  $0.01$ !

<b>Amortization Period</b>					
<b>Monthly Payment Per \$1000 Loan</b>					
<b>Annual Rate</b>	<b>1 Year Monthly</b>	<b>2 Years Monthly</b>	<b>3 Years Monthly</b>	<b>4 Years Monthly</b>	<b>5 Years Monthly</b>
<b>6.00%</b>	\$86.07	\$44.33	\$30.43	\$23.49	\$19.34
<b>6.25%</b>	\$86.18	\$44.44	\$30.54	\$23.61	\$19.46
<b>6.50%</b>	\$86.30	\$44.56	\$30.66	\$23.72	\$19.57
<b>6.75%</b>	\$86.41	\$44.67	\$30.77	\$23.84	\$19.69
<b>7.00%</b>	\$86.53	\$44.78	\$30.88	\$23.95	\$19.81
<b>7.25%</b>	\$86.64	\$44.89	\$31.00	\$24.07	\$19.93
<b>7.50%</b>	\$86.76	\$45.01	\$31.11	\$24.19	\$20.05
<b>7.75%</b>	\$86.87	\$45.12	\$31.23	\$24.30	\$20.16
<b>8.00%</b>	\$86.99	\$45.24	\$31.34	\$24.42	\$20.28
<b>8.25%</b>	\$87.10	\$45.34	\$31.45	\$24.53	\$20.40
<b>8.50%</b>	\$87.22	\$45.46	\$31.57	\$24.65	\$20.52
<b>8.75%</b>	\$87.34	\$45.57	\$31.68	\$24.71	\$20.64
<b>9.00%</b>	\$87.45	\$45.68	\$31.80	\$24.89	\$20.76
<b>9.25%</b>	\$87.57	\$45.80	\$31.92	\$25.00	\$20.88
<b>9.50%</b>	\$87.68	\$45.91	\$32.03	\$25.12	\$21.00
<b>9.75%</b>	\$87.80	\$46.03	\$32.15	\$25.24	\$21.12
<b>10.00%</b>	\$87.92	\$46.14	\$32.27	\$25.36	\$21.25
<b>10.25%</b>	\$88.03	\$46.26	\$32.38	\$25.48	\$21.37
<b>10.50%</b>	\$88.15	\$46.38	\$32.50	\$25.60	\$21.49
<b>10.75%</b>	\$88.27	\$46.49	\$32.62	\$25.72	\$21.62
<b>11.00%</b>	\$88.38	\$46.61	\$32.74	\$25.85	\$21.74
<b>11.25%</b>	\$88.50	\$46.72	\$32.86	\$25.97	\$21.87
<b>11.50%</b>	\$88.62	\$46.84	\$32.98	\$26.09	\$21.99
<b>11.75%</b>	\$88.73	\$46.96	\$33.10	\$26.21	\$22.12
<b>12.00%</b>	\$88.85	\$47.07	\$33.21	\$26.33	\$22.24
<b>12.25%</b>	\$88.97	\$47.19	\$33.33	\$26.46	\$22.37
<b>12.50%</b>	\$89.08	\$47.31	\$33.45	\$26.58	\$22.50
<b>12.75%</b>	\$89.20	\$47.42	\$33.57	\$26.70	\$22.63
<b>13.00%</b>	\$89.32	\$47.54	\$33.69	\$26.83	\$22.75
<b>13.25%</b>	\$89.43	\$47.66	\$33.81	\$26.95	\$22.88
<b>13.50%</b>	\$89.55	\$47.78	\$33.94	\$27.08	\$23.01
<b>13.75%</b>	\$89.67	\$47.89	\$34.06	\$27.20	\$23.14
<b>14.00%</b>	\$89.79	\$48.01	\$34.18	\$27.33	\$23.27