

SOLUTIONS

PART A: Knowledge and Understanding (MULTIPLE CHOICE)

For each question, circle the best answer.

1. You have collected data about how your marks have changed over the course of the 4 months in this semester. The best graph to display this data would be a...

- a. Line graph
b. Double bar graph
c. Circle graph
d. Histogram

The following 3 questions are based on the following set of numbers: 2, 3, 5, 6, 7, 7, 10, 10

2. Which of the following would be the mode(s) of the set of data?

- a. 7
b. 10
c. 7 and 10
d. There is no mode for this set of data

3. Which of the following would be the median of the set of data?

- a. 6
b. 6.5
c. 7
d. Both 6 and 7
- $\frac{6+7}{2}$

4. In a bag, you have 75 candies, differing only in colour. There are 18 red candies, 17 blue candies, 14 yellow candies, and the rest are green. What is the probability of pulling out a green candy without looking?

- a. $\frac{26}{75}$
b. $\frac{18}{75}$
c. 65%
d. $\frac{26}{100}$
- $\hookrightarrow 75 - 18 - 17 - 14 = 26$

5. From the same bag, what is the probability of pulling out a candy that is blue or red?

- a. $\frac{18}{75}$
b. $\frac{35}{75}$
c. $\frac{17}{75}$
d. $\frac{17}{18}$
- $\hookrightarrow 35$

6. Bort estimates that his chance of pulling out 3 blue candies in a row is 5%. Bort is using...

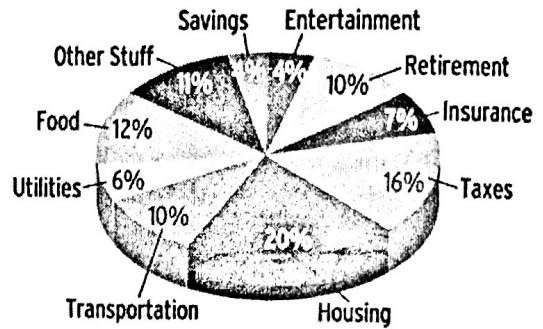
- a. Theoretical Probability
b. Subjective Probability
c. Experimental Probability
d. Organizational Probability

7. Consider the graph at the right

If this was your budget, and you earned \$3200 per month, how much would you spend per month on insurance?

- a) \$125
- b) \$224**
- c) \$70
- d) \$20

$$7\% \text{ of } 3200 = 0.07(3200) = 224$$

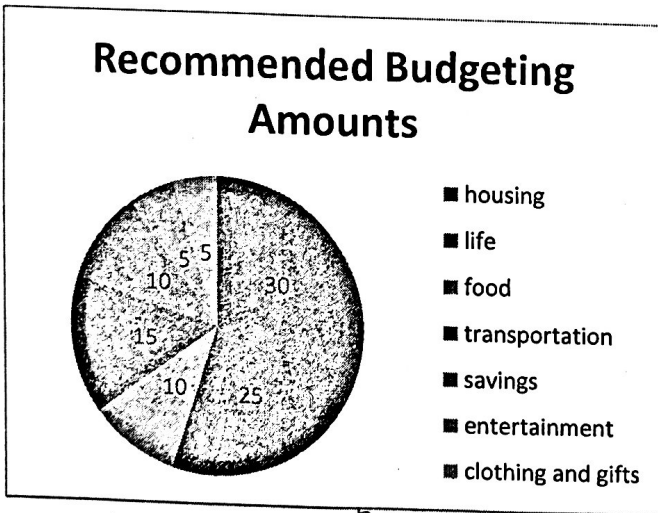


8. Fahad earns an annual salary of \$34 000. He gets paid monthly. How much does he earn on each paycheck (not including deductions)?

- a. \$2833.33**
- b. \$3400

- c. \$653.85
- d. \$17 000

9. Consider the following recommendations for budgeting:



Shauna earns \$3750 per month. She spends \$375 / month on food and \$200 on entertainment. Which of the following best describes how her spending matches the recommendations?

- a) Both food and entertainment are on budget**
- b) She spends too much on food and is on budget for entertainment
- c) She is over on both food and entertainment
- d) She is on budget for food but spends too much on entertainment.

$$5\% \text{ of } 3750 = \$187.50 \text{ under budget}$$

$$10\% \text{ of } 3750 = \$375 \text{ on budget}$$

10. Miles earns \$1870 biweekly (every other week). What is his annual salary? Remember that there are 52 weeks in a year.

- a. \$3740
- b. \$48 620**

$$1870 \times 26$$

- c. \$97 240
- d. \$22 440

11. Stephen is following the advice of his teacher, and is putting \$50 from every paycheck into a savings account. In his account, he will earn compound interest on his savings. Compound interest means...

- a. He gets the same amount of interest every month
- b. He gets interest on top of interest

12. A rectangular prism has dimensions 8 cm x 12 cm x 15 cm. What is the volume of this prism?

- a. 1440 cm³
- b. 70 cm
- c. 1500 cm³
- d. 1440 cm²

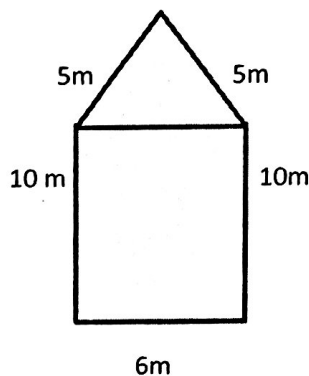
13. What would the surface area of the prism in question 12 be?

- a. 396 cm²
 - b. 792 cm²
 - c. 1440 cm³
 - d. 70 cm²
- $2(8 \times 12 + 8 \times 15 + 12 \times 15) = 792$

14. Which of the following is NOT a standard deduction from all Canadian paychecks?

- a. EI
- b. CPP
- c. Income Tax
- d. Union Dues

15. Yves and Janet are having an argument about finding the perimeter of the following composite shape. They can't agree on how to find the perimeter of the shape. Choose the correct expression to find the perimeter.



- a) $P = 5 + 5 + 6 + 10 + 6 + 10$
- b) $P = 5 + 5 + 10 + 6 + 10$
- c) $P = 6 \times 10 + (5 \times 6) \div 2$
- d) $P = 6 \times 10 + 5 \times 5$

PART B: Communication (TRUE OR FALSE)

Circle T for true if the sentence is correct. Circle F for false if the statement is incorrect.

16. In order to price out hardwood flooring you would need the perimeter of the floor T F
17. Mean is another word for the average of a set of data T F
18. A circle graph is a good choice if you want to see how a set of data changes over time. T F
19. The volume of a pyramid is one half the volume of a cone with the same base and height T F
-
20. EI stands for Employment Interest T F
21. To find the area of a composite shape, you find the area of each simple shape first, and then add them together. T F
22. A car payment would be a variable expense on a budget T F
23. Groceries would be a non-discretionary expense T F
NEED
24. If the probability of an event happening is $\frac{3}{8}$, then the probability of the event not happening is $\frac{5}{8}$. T F
25. Experimental probability is more accurate if you do more trials. T F

PART C: Application and Problem Solving (SHORT and LONG ANSWER)

26. [6 marks] The following table shows a breakdown of people who watched the One Act Plays at our school.

	Male	Female	Totals
Adults	85	62	147
Teenagers	44	36	80
Children	16	7	23
Totals	145	105	250

A ticket is randomly drawn for a door prize.

(a) What is the probability (as a fraction) that a child wins the door prize?

$$\frac{23}{250}$$

(b) What is the probability (as a fraction) that a female wins the door prize?

$$\frac{105}{250}$$

(c) A child gets scared during a more serious play. What is the probability (as a fraction) that the child is a male?

$$\frac{16}{23}$$

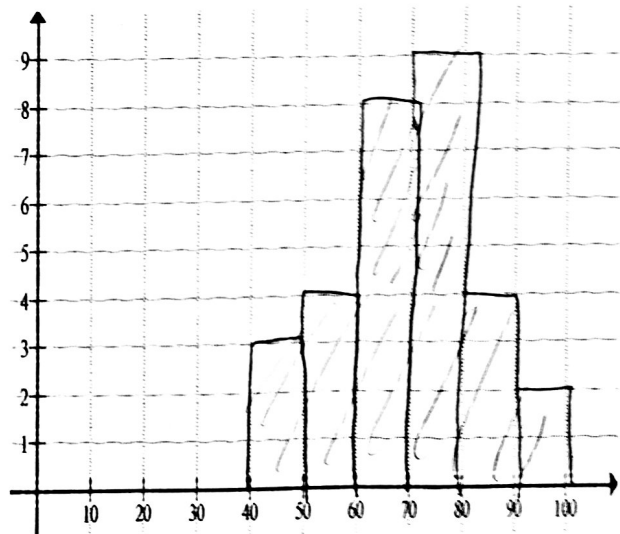
(Handwritten: 85/145 crossed out)

(d) A woman screams during a jump-scare in one of the plays. What is the probability that it was an adult??

$$\frac{62}{105}$$

27. Below is a list of marks for a certain math class. Organize the information into the frequency table, and then create a histogram to represent the data.

LEVEL	Tally	Total
Level 1- (40 - 49)	III	3
Level 1 (50 - 60)	IIII	4
Level 2 (61-70)	IIII III	8
Level 3 (71 - 80)	IIII IIII	9
Level 4 (81 - 90)	IIII	4
Level 4+ (91 - 100)	II	2

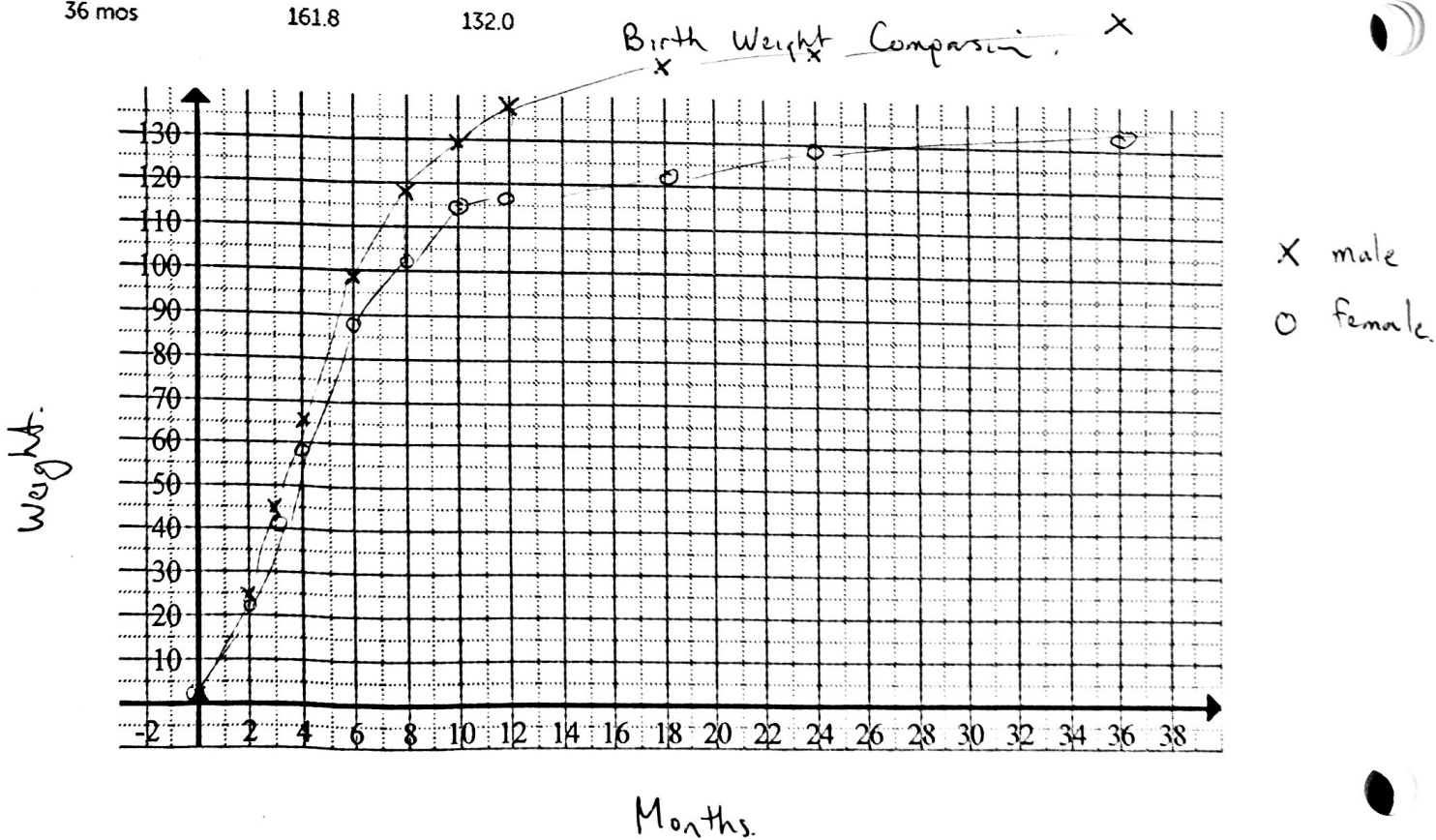


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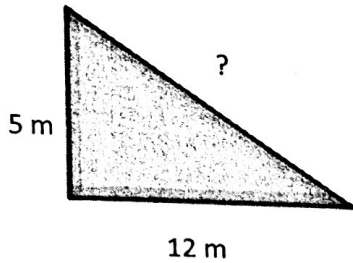
28. Below is data showing the growth of an irish wolfhound over one year, male vs. female. Create a double line graph to compare the *monthly weights* of each sex. Include labels, a title, and a legend.

Note: Birth weight (0 months) = 1.8 lbs

	Weight (lbs)	
	Male	Female
2 mos	24.8	23.5
3 mos	44.7	41.7
4 mos	64.9	58.2
6 mos	98.3	87.2
8 mos	117.1	102.8
10 mos	129.7	114.8
12 mos	136.1	116.7
18 mos	144.7	120.1
24 mos	149.8	129.0
36 mos	161.8	132.0



29. Find the missing side in the given triangle using the Pythagorean Theorem:



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

$$= 5^2 + 12^2$$

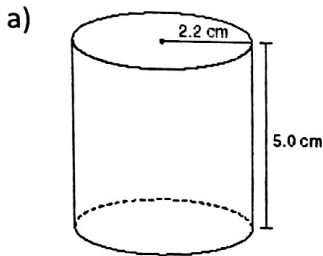
$$= 25 + 144$$

$$= 169$$

$$c = \sqrt{169}$$

$$c = 13m$$

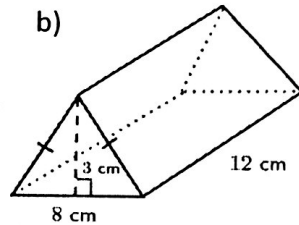
30. Find the volume of the following figures.



$$V = \pi \times r \times r \times h$$

$$= 3.14 \times 2.2 \times 2.2 \times 5$$

$$\approx 76 \text{ cm}^3$$



$$V = b \times l \times h \div 2$$

$$= 8 \times 3 \times 12 \div 2$$

$$= 144 \text{ cm}^3$$

31. Find the volume of the following 3D shape.

3d Shape	Basic Shape 1	Basic Shape 2
<p>Sketch:</p>	$V = l \times w \times h$ $= 16 \times 5 \times 4$ $=$	$V = b \times l \times h \div 2$ $= 16 \times 4 \times 6 \div 2$ $=$
	Volume = 320 m^3	Volume = 192 m^3
Total Volume = $320 + 192 = 512 \text{ m}^3$		

Practice Exam | MEL4E

32. [10 marks] Donny Jim (DJ) invests \$300 every month into an RRSP (retirement savings plan). This plan pays 5.2% interest compounded monthly. How much money will DJ have when he retires in 35 years?

a) How many months are in 35 years? $35 \times 12 = 420$

b) Solve for FV:

\$ 356,374.97 in 35 years.

N:	420 (deposits)
I(%):	5.2
PV:	0
Pmt:	-300
FV:	356,374.97
PpY:	12
CpY:	12

Note: Enter your FV amount from part b) into your PV for part c)

c) If DJ wants to make this money last for 30 years once he has retired, how much can he withdraw every month?

d) How many months are in 30 years? $30 \times 12 = 360$

e) Solve for Pmt: \$ 1956.89 / month

N:	360 (withdrawals)
I(%):	5.2
PV:	-356,374.97
Pmt:	1956.89
FV:	0
PpY:	12
CpY:	12

Summary:

f) How much money did DJ deposit over his 35 year working career?

# of Deposits		Deposit Amount		Total \$ Deposited
420	x	300	=	\$126,000

g) How much did DJ withdraw altogether over his 30 years of retirement?

# of Withdrawals		Withdrawal Amount		Total \$ Withdrawn
360	x	1956.89	=	\$704,480.40