

<p>20</p> <p>Draft #2 is due today</p> <p><u>Logic - Review</u></p> <p>Analyze questions 1 & 2 from Paper 2</p>	<p>21</p> <p>Quiz on: Logic and Finance</p> <p>Turn in all Logic Assignments</p> <p>Assignment: Paper 2 – Question #3</p>	<p>22</p> <p>MockExam Paper 2 Question #4</p>	<p>23</p> <p>No School Thanksgiving</p>	<p>24</p> <p>No School</p>
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period 4 to finish LCQ

Hard copies of projects get turned
in to Green folder.

(and should include everything asked)
for in P4

Do the Warm Up Question

f



Consider the frequency distribution of heights of elementary school students below:

height h (cm)	frequency
$130 \leq h < 135$	2
$135 \leq h < 140$	3
$140 \leq h < 145$	5
$145 \leq h < 150$	7
$150 \leq h < 155$	6
$155 \leq h < 160$	2

- Determine the midpoint of the $130 \leq h < 135$ interval.
- Calculate the approximate mean height of the students.
- Determine the modal class interval.



Consider the frequency distribution of heights of elementary school students below:

L_1

137.5
 137.5
 142.5
 147.5
 152.5
 157.5

L_2

height h (cm)	frequency
$130 \leq h < 135$	2
$135 \leq h < 140$	3
$140 \leq h < 145$	5
$145 \leq h < 150$	7
$150 \leq h < 155$	6
$155 \leq h < 160$	2

- Determine the midpoint of the $130 \leq h < 135$ interval. 137.5
- Calculate the approximate mean height of the students. $146.1 \approx 146 \text{ cm}$
- Determine the modal class interval.

$145 \leq h < 150$

f

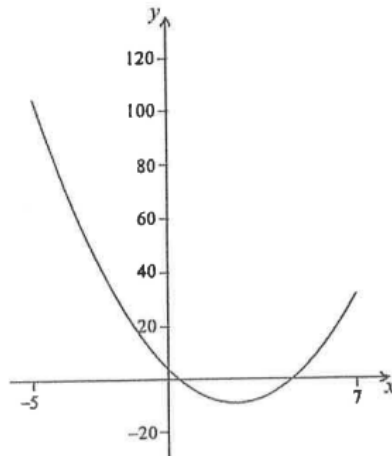
- 5 Consider the frequency distribution of heights of elementary school students (cm) shown below:

x midpoint	height h (cm)	frequency
132.5	$130 \leq h < 135$	2
137.5	$135 \leq h < 140$	3
142.5	$140 \leq h < 145$	5
147.5	$145 \leq h < 150$	7
152.5	$150 \leq h < 155$	6
157.5	$155 \leq h < 160$	2

$$\begin{aligned}\bar{x} &= \frac{\sum f \cdot x}{n} \\ &= \frac{\sum f \cdot x}{\sum f} \quad \leftarrow \text{critical total} \\ &= \frac{3652.5}{25} \\ &\approx 146.1 \\ &\approx 146 \text{ cm}\end{aligned}$$

- a. Determine the midpoint of the $130 \leq h < 135$ interval. 132.5
- b. Calculate the approximate mean height of the students. 146 cm
- c. Determine the modal class interval. $145 \leq h < 150$
because it occurs the most.

- 2 The graph of $y = 2x^2 - rx + q$ is shown for $-5 \leq x \leq 7$.



The graph cuts the y -axis at $(0, 4)$.

- (a) Write down the value of q .

f

The axis of symmetry is $x = 2.5$.

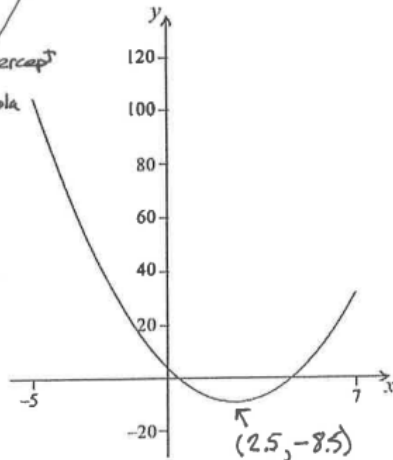
- (b) Find the value of r .
- (c) Write down the minimum value of y .
- (d) Write down the range of y .

6

The graph of $y = 2x^2 - rx + q$ is shown for $-5 \leq x \leq 7$.

$a = 2$
 $b = -r$

y-intercept
of a
parabola



Download

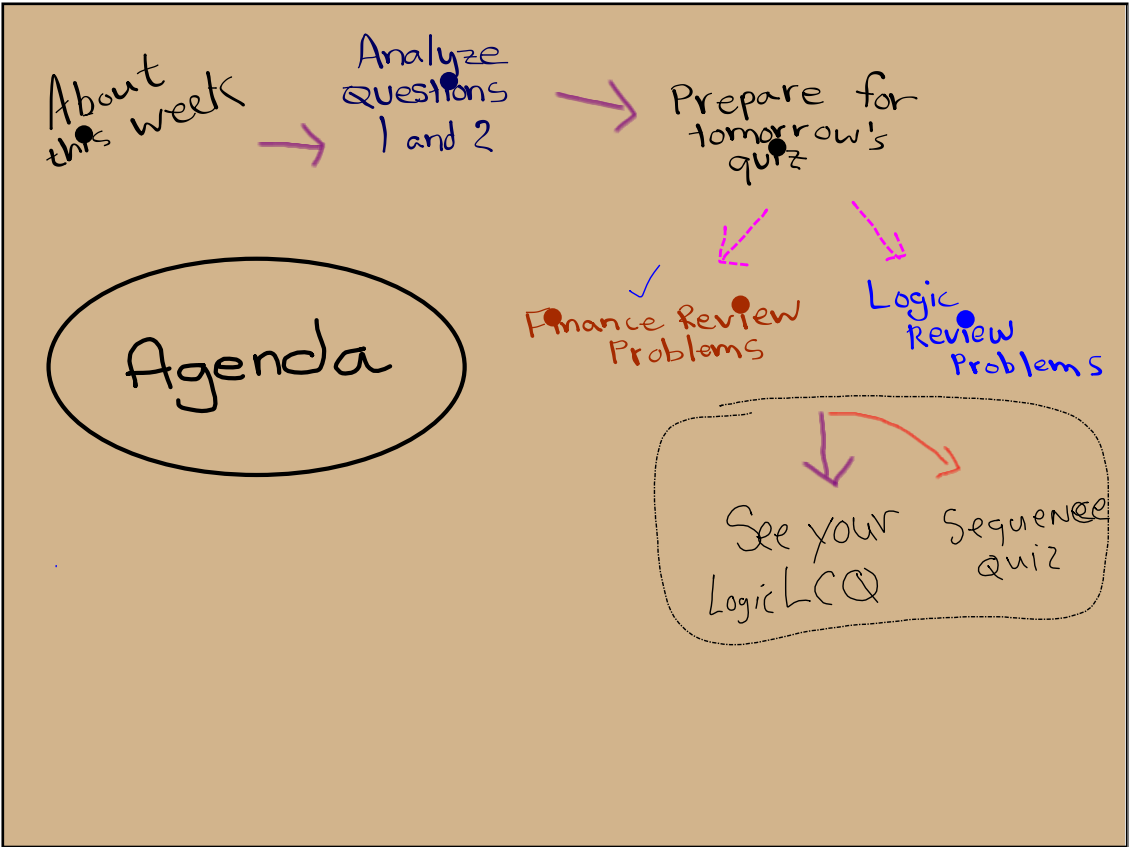
b) from formula (axis of symmetry)
packet
 $x = \frac{-b}{2a}$
 $2.5 = \frac{-(-r)}{2(2)}$
 $r = 10$

The graph cuts the y -axis at $(0, 4)$.

- (a) Write down the value of q . $= 4$ (1)

The axis of symmetry is $x = 2.5$.

- (b) Find the value of r . $\boxed{10}$ see above
- (c) Write down the minimum value of y . $= -8.5$ $y = 2(2.5)^2 - 10(2.5) + 4$ (1)



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<p>27</p> <p>Analyze results from Paper #2 questions 3 & 4</p> <p>Instructions for Paper 1</p> <p>MockExam Paper 2 Questions #5 and #6</p>	<p>28</p> <p>MockExam Paper 1 Paper 1 – Questions 1-9</p>	<p>29</p> <p>MockExam Paper 1 Paper 1 – Questions 10-15</p>	<p>30</p> <p>Last Day of Trimester -Analyze results of Paper 1. -Review Session Info -Project Feedback</p>	<p>No School</p>

Projects

Data file ••• Your name is helpful ☺



Paper 2

#1 and #2

Analyze your
results

MI

MI

•• AI

G3

For the quiz tomorrow:

You can use the Formula Packet which has the basic truth tables listed and the Compound Interest Formula.

You will need to memorize the symbols and definitions of converse, inverse, and contrapositive.

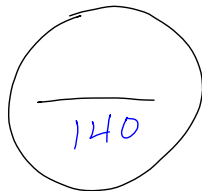
\wedge \vee \perp \rightarrow \leftrightarrow

Know how to prove a tautology
or a logical contradiction.

Know how to prove two logical
statements are logically equivalent.

HW Packet

Yesterday's Finance Review is
the last item



due no later than
start of class
tomorrow.

Available

= Logic Practice with Answers

- Finance Practice
with answers

* Work on Practice

△ See your LCQ

f

a	b	c	bvc	a	bvc ↔ a
T	T	T	F	T	F
T	T	F	T	T	T
T	F	T	T	T	T
T	F	F	F	T	F
F	T	T	F	F	T
F	T	F	T	F	F
F	F	T	T	F	F
F	F	F	F	F	T

6) Mario has spent \$ 40000 to buy some land. The land increases in value by 5 % each year.

(i) What is the value of the land after the end of five years?

At the end of five years, Mario sells the land. He pays 1 % tax on the sale and spends the rest of the money on a car. The car then loses value at a rate of \$ 2500 every year.

(ii) How much tax does Mario pay?

(iii) How much is the car worth five years after Mario buys it?

Working:

(i) can use $FV = C(1 + \frac{r}{100})^n$ or $y = ab^x$
 $= 40000(1 + \frac{5}{100})^5$ or $y = 40000(1.05)^5 = 51,051.26$

(ii) TAX
 1% of 51,051.26
 is \$ 510.51

(iii) $\begin{matrix} 51,051 \\ - 511 \\ \hline 50,540 \end{matrix}$ after taxes

Buys car valued at \$ 50,540

depreciates linearly
 $FV = 50540 - 5(2500)$
 $= \$ 38,040$

Answers:

(i) \$ 51,051
 (ii) \$ 510.51 or \$ 511
 (iii) \$ 38,040

Handwritten note: \$2500 in interest

FINANCE Practice

Name _____

You can use your TI-App to check answers, but you are expected to show work.

- ① Takaya invested 1000 JPY at 6.3% ^{monthly} interest for 15 years. Morimi invested 900 JPY at 6.3% interest compounded quarterly for 15 years. Who had more money at the end of the 15th year? Justify your answer clearly.

Takaya $FV = 1000 \left(1 + \frac{6.3}{100(12)}\right)^{(12 \times 15)}$
 $= 2566.46 \text{ JPY}$

Morimi $FV = 900 \left(1 + \frac{6.3}{100(4)}\right)^{(4 \times 15)}$
 $= 2298.54 \text{ JPY}$

So Takaya had more.

- ② Bobby is spending a year travelling from America to France and Britain. Consider the following exchange rates.

1 US dollar (USD) = 0.983 Euros
 1 British Pound (GBP) = 1.59 Euros

- (a) Bobby changes 500 USD into Euros.

- (i) Calculate how many Euros he receives.

$500 \text{ USD} \times 0.983 \frac{\text{Euros}}{1 \text{ USD}} = 491.50 \text{ Euros}$

- He spends 328 Euros in France and changes the remainder into GBP. ^{but this time is charged a 3% commission.}
- (ii) Calculate how many GBP he receives.

$\begin{array}{r} 491.50 \\ - 328 \\ \hline 163.5 \text{ Euros left} \end{array}$

3% of 163.5 = 4.9 euro commission

$\begin{array}{r} 163.5 \\ - 4.9 \\ \hline 158.6 \text{ Euros} \end{array} \times \frac{1 \text{ GBP}}{1.59 \text{ Euros}} = 99.75 \text{ GBP}$

While in Britain Bobby decides to put this money in a bank that pays 6% per annum, compound yearly and he gets a part-time job to cover his expenses. Bobby remains in Britain for six months.

- (b) Calculate how much interest he receives for the six months.

$99.75 \left(1 + \frac{6}{100(1)}\right)^{(1 \times 0.5)}$

102.70 GBP

Interest $102.70 - 99.75 = 2.95$

4) Bob invests 600 EUR in a bank that offers a rate of 2.75% compounded annually. The interest is added on at the end of each year.

(a) Calculate how much money Bob has in the bank after 4 years.

(b) Calculate the number of years it will take for the investment to double.

Ann invests 600 EUR in another bank that offers interest compounded annually. Her investment doubles in 20 years.

(c) Find the rate that the bank is offering.

a) $FV = 600 \left(1 + \frac{2.75}{100}\right)^{(4 \cdot 1)} = 668.77 \text{ EUR}$

b) IF DOUBLED, initial investment would be 1200 EUR $1200 = 600 \left(1 + \frac{2.75}{100}\right)^{(n \cdot 1)}$

$2 = \left(1 + \frac{2.75}{100}\right)^n$

Using logs or graphing $n \approx 25.6 \text{ years}$

c) $1200 = 600 \left(1 + \frac{r}{100}\right)^{(20 \cdot 1)}$

$2 = \left(1 + \frac{r}{100}\right)^{20}$

$\frac{r}{100} = \sqrt[20]{2} - 1$

$r = 3.5\%$

5) A family in Malaysia received a gift of AUD \$ 4000 from a cousin living in Australia.

The money was converted to Malaysian Ringgit. One Ringgit can be exchanged for 0.4504 AUD.

(a) Calculate the amount of Ringgit received.

$4000 \text{ AUD} \times \frac{1 \text{ RINGGIT}}{0.4504 \text{ AUD}} = 8880 \text{ RINGGIT}$

The money was invested for 2 years and 6 months at 5.2% p.a. compounding monthly.

(b) Calculate the amount of interest earned from this investment. Give your answer to the nearest Ringgit.

$n = 2 \text{ yrs } 6 \text{ m} = 2.5 \text{ years}$

$FV = 8880 \left(1 + \frac{5.2}{100(12)}\right)^{(2.5 \cdot 12)}$

$= 10,109.96 \text{ RINGGIT} \rightarrow \text{nearest RINGGIT}$

$10,110 \text{ ringgit}$

$- 8880$

$= 1230 \text{ interest}$

Assuming 8880 RINGGIT

6) Mario has spent \$ 40000 to buy some land. The land increases in value by 5% each year.

(i) What is the value of the land after the end of five years?

7

John invests X USD in a bank. The bank's stated rate of interest is 6% per annum, compounded monthly.

(a) Write down, in terms of X , an expression for the value of John's investment after one year.

$$FV = C \left(1 + \frac{r}{100k}\right)^{nk}$$

$$r = 6$$

$$k = 12$$

$$n = 1$$

$$FV = X \left(1 + \frac{6}{100 \cdot 12}\right)^{(1 \times 12)}$$

$$FV = X \left(1 + \frac{6}{1200}\right)^{12}$$

(b) What rate of interest, when compounded annually (instead of monthly) will give the same value of John's investment as in part (a)? Give your answer correct to three significant figures.

Working:

if annually it would be $X \left(1 + \frac{r}{100}\right)^1$

set them equal to each other

$$X \left(1 + \frac{6}{1200}\right)^{12} = X \left(1 + \frac{r}{100}\right)^1$$

Solve for r

Answers:

- (a) $X \left(1 + \frac{6}{1200}\right)^{12}$
 (b) 6.17%

f

$$\left(1 + \frac{6}{100}\right)^{12} = 1 + \frac{r}{100}$$

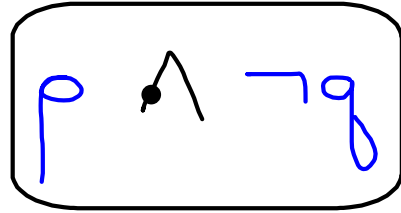
$$\left(1 + \frac{6}{100}\right)^{12} - 1 = \frac{r}{100}$$

$$r \approx 6.17$$

B.B.

f

p : IHS student
 q : IB student
 r : non IHS student



$\neg(a \vee c) \Rightarrow b \wedge c$

a	b	c	$a \vee c$	$\neg(a \vee c)$	$b \wedge c$	$\neg(a \vee c) \Rightarrow b \wedge c$
T	T	T				
T	T	F				
T	F	T				
T	F	F				
F	T	T				
F	T	F				
F	F	T				
F	F	F				

f

a	b	c	$a \vee c$	$\neg(a \vee c)$	$b \wedge c$	$\neg(a \vee c) \Rightarrow b \wedge c$
T	T	T	T	F	T	T
T	T	F	T	F	F	T
T	F	T	T	F	F	T
T	F	F	T	F	F	T
F	T	T	T	F	T	T
F	T	F	F	T	F	F
F	F	T	T	F	F	T
F	F	F	F	T	F	F

a	b	c	$b \vee c$	a	$b \vee c \Leftrightarrow a$
T	T	T			
T	T	F			
T	F	T			
T	F	F			
F	T	T			
F	T	F			
F	F	T			
F	F	F			

f

