How to compute foreign currency transactions using exchange rates?

Essential Question Essential Question Essential Question Essential Question Essential Question Essential Question Essential Question

Week 14, Lesson 1

1. Warm Up
2. Currency
3. ICA/H.W

Currency

How to compute foreign currency transactions using exchange rates?

99

Yes, we skipped a few pages

Warm-up Warm-up Warm-up Warm-up Warm-up Warm-up Warm-up Warm-up Warm-up Warm-up Warm-up Warm-up Warm-up Warm-up Warm-up Warm-up Warm-up

Warm Up: Identify the Domain and Range of the following functions.

1) $y=5x-4$ Linear

Domain: $\mathbb{R}$

Range: $\mathbb{R}$

2) $y=x^2+6x+9$ Quad

Domain: $\mathbb{R}$

Range: $y \geq 0$

Vertex $(-3, 0)$

3) $y=|x-1|+5$ Linear

Absolute Value

Domain: $\mathbb{R}$

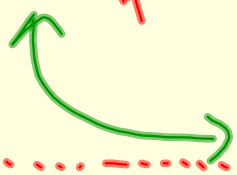
Range: $y \geq 5$

Vertex $(1, 5)$

4) $y = 2\left(\frac{1}{2}\right)^x + 3$ Expo

Domain: $\mathbb{R}$

Range: $y > 3$



Week 14

15 Week Test Study Guide

94

Q4 Math Studies 2: 15 Week STUDY GUIDE

Review (6.1, 6.3, 6.4)

1) Determine what type of function it is, graph it, and label other information.

$y = -\frac{1}{10}x - 5$

Circle one: Linear or Quadratic or Exponential

Domain:

Range:

2) Determine what type of function it is, graph it, and label other information.

$y = x^2 + 6x - 8$

Circle one: Linear or Quadratic or Exponential

Domain:

Range:

3) Determine what type of function it is, graph it, and label other information.

$y = 3|x - 4| - 2$

Circle one: Linear Absolute Value Quadratic Absolute Value Exponential Absolute Value

Domain:

Range:

4) Determine what type of function it is, graph it, and label other information.

$y = 4\left(\frac{2}{7}\right)^{x-3} - 8$

Circle one: Linear or Quadratic or Exponential

Horizontal Asymptote:

Point of Inflection:

Review (6.6a, 6.8b)

5) This pyramid shown has a square base and those that are isosceles triangles. What is the surface area of the pyramid?

13 cm

8 cm

6) What is the surface area of the triangular prism?

40 in

9 in

7) A right rectangular pyramid, with a height of 16 cm, a base of 2 cm, and a width of 12 cm, is filled with water. The water is poured from the pyramid into a right rectangular prism, 2 cm by 3 cm by 13 cm, sitting on its smallest face. What is the height, in centimeters, of the water level?

95

Review (6.2, 6.3, 6.4)

8) A game warden stands at a point A. An elephant, E, is located 40 meters north of the game warden and Tommy, T, is standing 200 meters due west of the game warden. Find the distance between the elephant and Tommy.

9) What is $\tan\angle A$?

A

B

C

13

22

10) What is the value of x?

48

x

11) Find the missing information

A

B

C

12

42°

10

$\angle A =$ ___

$\angle C =$ ___

$c =$ ___

(1.2b) Currency Conversion

12) Juan has 50 Pesos. She wants to purchase a piñata for 30 USD and breadsticks for 8 USD. After her purchase, how much money will she have left in USD?

Hint: 1 Peso is to 1.10 USD

13) Which amount has the greatest value in Canadian dollars?

1 USD = 0.991051 CAD

1 Israeli Pound = 0.4166 CAD

1 Euro = 0.727312 CAD

1 Japanese Dollar= 92.413 CAD

A) 450 USD

B) 340 British Pounds

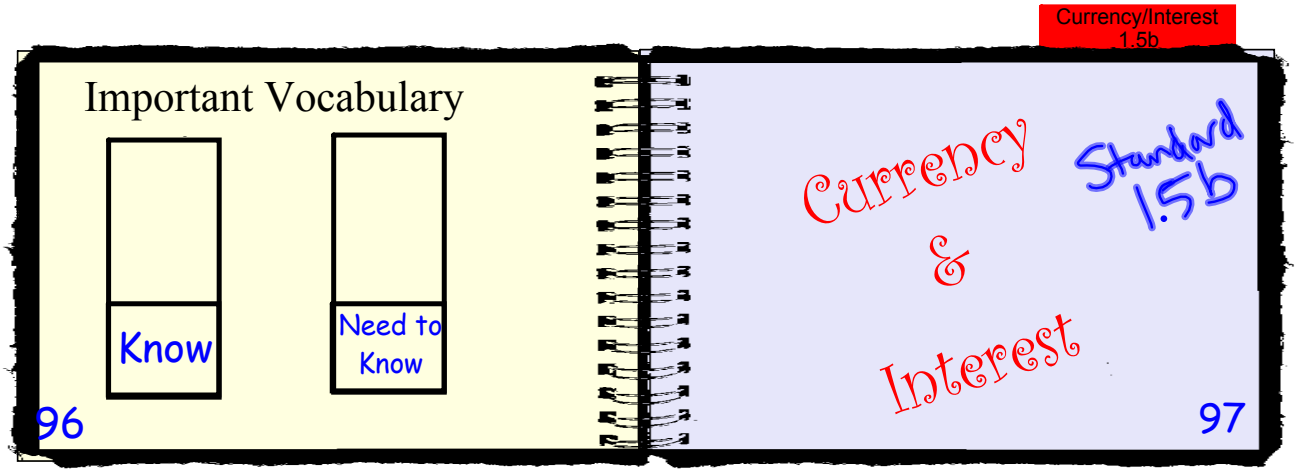
C) 300 Euros

D) 75000 Japanese Dollars

14) Chris must repay a loan of 70€ euros from his friend over a period of eight months. In each month he will pay 9€ euros plus an amount of interest equal to 4 euros in the first month, 3.5 euros in the second reducing by half a euro each month until it reaches 50 euros in the eight months. How much will Chris pay in total?

15) Santiago invests 9,000 Egyptian Pounds (EGP) at a rate of +3% compounding yearly. Calculate the amount in Santiago's account after 3 years. How much of that is interest?

Week 14


Currency/Interest
1.5b
Important Vocabulary
Know
Need to Know
96
Currency
&
Interest
Standard
1.5b
97

Currency

Standard 1.5b

What I should probably familiarize myself with!

Currency	Abbreviation	Symbol
Mexican Peso	MXN	₱
Canadian Dollar	CAD	C$
Japanese Yen	JPY	¥
British Pound	GBP	£
Swiss Franc	CHF	₣
South African Rand	ZAR	R
Australian Dollar	AUD	A$
European Euro	EUR	€

Example A DVD is selling for €30.00 in Ireland and the same DVD is selling for $35 in the USA. The exchange rate is $1.00=€ 0.63. Is there a price difference between the two countries? If so, state the difference.

$$\frac{€30}{1}\left(\frac{\$1}{€0.63}\right)=\frac{\$30}{0.63}=\$47.62$$

$$47.62-35=\$12.62$$

The DVD is cheaper in the US by $12.62.

Summary:

Week 14

ICA:

1) Convert €29 to USA dollars, if the exchange rate is €1=$1.05 and the bank is charging commission of €4 per transaction. Show your calculations.

2) Which of the following is the better exchange rate if you were converting €120 to USA dollars and explain your choice?

Bank A charges commission at €2.50 per transaction and an exchange rate of €1= $1.02. Bank B charges no commission and an exchange rate of €1 = $1.10.

3) Convert $100 to euro given that the current exchange rate is €1 = $1.24.

4) A camera costs £150 in England and the exchange rate is €1= £0.82 plus the bank charges commission per transaction of €3. What will the camera cost in euro?

5) An American tourist is coming to Ireland and wishes to have €145 spending money while in Ireland. How many American dollars will they need to exchange to euro given $1=€0.77?

6) Eve returns from Switzerland with 65 Swiss francs. She changes the francs back to euro, at a rate of €1=1.40 francs. How much does she get back?

1) Convert €29 to USA dollars, if the exchange rate is €1= $1.05 and the bank is charging commission of €4 per transaction. Show your calculations.

€29 - €4 = €25

Commission

$$€25\left(\frac{\$1.05}{€1}\right) = 25(1.05) = \$26.25$$

2) Which of the following is the better exchange rate if you were converting €120 to USA dollars and explain your choice?

Bank A charges commission at €2.50 per transaction and an exchange rate of €1= $1.02. Bank B charges no commission and an exchange rate of €1 = $1.10.

Closure Closure Closure Closure Closure Closure Closure Closure Closure Closure Closure Closure Closure Closure Closure Closure Closure Closure

Right Side...

Write a summary that answers the essential question.

Left Side...

Quick write:

What should you do to prepare for the next Test if you are still struggling with currency conversions?

How do I solve word problems using the interest formula on the IB reference sheet?

Essential Question Essential Question Essential Question Essential Question Essential Question Essential Question Essential Question

Week 14, Lesson 2

1. Vocabulary..
2. Interest
3. ICA

Interest

How do I solve word problems using the interest formula on IB reference sheet?

101

Warm-up Warm-up Warm-up Warm-up Warm-up Warm-up Warm-up Warm-up Warm-up Warm-up Warm-up Warm-up Warm-up Warm-up Warm-up Warm-up Warm-up

Warm up:

Vocabulary Words

Week 14

Exchange Rate: The price of a nation's currency in terms of another currency.

Value: the worth of something in terms of the amount of other things for which it can be exchanged or in terms of some medium of exchange.

Convert: to change (something) into a different form or properties; transmute; transform.

1 inch = 2.54 centimeters

Interest: The amount of money that you pay to borrow money or the amount of money that you earn on a deposit

Rate of Inflation: The rate at which the general level of prices for goods and services is rising, and, subsequently, purchasing power is falling.

Savings: the amount of money that you have saved especially in a bank over a period of time

Investment: An asset or item that is purchased with the hope that it will generate income or appreciate in the future.

Compounded: The ability of an asset to generate earnings, which are then reinvested in order to generate their own earnings.

$$A= 1000\left(1+\frac{.05}{2}\right)^{(2\cdot 1)}$$
$$A= 1000(1+.025)^{(2)}$$
$$A= 1000(1.025)^{(2)}$$
$$A= \$1050.63$$

Interest

Interest
1.5b

Interest Formula

$$FV = PV \times \left(1 + \frac{r}{100k}\right)^{kn}$$

FV is future value

PV is present value

r% is nominal annual interest rate

k is the number of compounding periods.

n is the number of years

Example: If you have a bank account whose principal = $1000, and your bank compounds the interest twice a year at an interest rate of 5%, how much money do you have in your account at the year's end?

$PV = 1{,}000 \quad r\% = 5\% \quad K = 2 \quad n = 1$

$$FV = 1{,}000 \times \left(1 + \frac{5}{100(2)}\right)^{2(1)}$$

$$FV = 1000\left(1 + (5 \div 200)\right)^{\wedge} 2$$

At the end of the year my account will have $1050.63 in it.

Summary:

ICA:

1) If you start a bank account with $10,000 and your bank compounds the interest quarterly at an interest rate of 8%, how much money do you have at the year's end ?

2) The first credit card that you got charges 12.49 % interest to its customers and compounds that interest monthly. Within one day of getting your first credit card, you max out the credit limit by spending $1,200.00 . If you do not buy anything else on the card and you do not make any payments, how much money would you owe the company after 6 months?

3) A man invests $10, 000 in an account that pays 8.5% interest per year,compounded quarterly. What is the amount of money that he will have after 3 years?

4) An investment of $1425 earns 6.75% and compounds annually. What is the total amount after 8 years?

5) Suppose that you plan to need $10,000 in thirty-six months' time when your child starts attending university. You want to invest in an instrument yielding 3.5% interest, compounded monthly. How much should you invest?

6) If an investment pays 9% compounded monthly, how much should you deposit now in order to have $5000 4 years from now?

7) Suppose Karen has $1000 that she invests in an account that pays 3.5% interest compounded quarterly. How much money does Karen have at the end of 5 years?

8) Kelly plans to put her graduation money into an account and leave it there for 4 years while she goes to college. She receives $750 in graduation money that she puts it into an account that earns 4.25% interest compounded semi-annually. How much will be in Kelly's account at the end of four years?

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Right Side...

Write a summary that answers the essential question.

Left Side...

Quick write:

How can you connect the concept of currency with Interest problems?

How do I utilize exchange rate while working on interest problems?

Essential Question Essential Question Essential Question Essential Question Essential Question Essential Question Essential Question

Week 14, Lesson 3

1. Warm Up
2. Currency & Interest
3. ICA/H.W

Currency & Interest

How do I utilize exchange rate while working on interest problems?

103

Warm-up:

1) Anne wants to buy a new couch in 3 years. The couch will cost $1,500 by then. How much should she invest now at 6%, compounded quarterly, so that she will have enough money to buy the couch?

2) A newborn child receives a $20,000 gift toward a college education from her grandparents. How much will the $20,000 be worth in 17 years if it is invested at 7% compounded quarterly?

3) If an investment company pays 6% compounded semiannually, how much should you deposit now to have $10,000 5 years from now?

Week 14

1) Anne wants to buy a new couch in 3 years. The couch will cost $1,500 by then. How much should she invest now at 6%, compounded quarterly, so that she will have enough money to buy the couch?

$FV=1500 \quad r=6\% \quad K=4 \quad n=3$

$$1500 = PV\left(1+\frac{6}{100(4)}\right)^{4(3)}$$

$\$1254.58$

2) A newborn child receives a $20,000 gift toward a college education from her grandparents. How much will the $20,000 be worth in 17 years if it is invested at 7% compounded quarterly?

$PV=20{,}000 \quad r=7\% \quad K=4 \quad n=17$

$$FV=20000\left(1+\frac{7}{100(4)}\right)^{4(17)}$$

$\$65{,}068.44$

3) If an investment company pays 6% compounded semiannually, how much should you deposit now to have $10,000 5 years from now?

$FV=10000 \quad r=6 \quad K=2 \quad n=5$

$$10000=PV\left(1+\frac{6}{100(2)}\right)^{2(5)}$$

$\$7440.94$

Week 14

Currency & Interest

Unit 1

Let's apply what we know!

Ms. Graph decides to invest 15,000 Mexican Pesos (MXN) at a rate of 7.1% compounding monthly. Calculate the amount in Ms. Graph's account after 4 years. How much of that is interest?

FV: — PV: 15000 r: 7.1 k: 12 n: 4

$FV = 15000\left(1+\frac{7.1}{100(12)}\right)^{12(4)} = 19909.83$

$19909.83 - 15000.00 = 4909.83$

Convert 4909.83 Pesos to USD given that the current exchange rate is 1USD = 13.1 pesos.

$\frac{4909.83}{1}\left(\frac{1\text{ USD}}{13.1}\right) = \frac{4909.83}{13.1}$

$374.80

~~Now, Ms. Graph has decided to use the money she gained to repay a loan she recently took out.~~ The loan is 200 dollars and ~~must be repaid in a 9 month period~~. In each month she will pay 29 dollars plus an amount of interest equal to 4.50 dollars in the first month, 4 dollars the next month until it reaches .50 in the ninth month. However, does she have enough money?

1. $233.50 Yes!
2. 266.50 Yes!
3. 299 Yes!
4. 331 Yes!
5. 362.50 Yes!
6. 393.50 NO!

1. 200+29+4.5
2. 233.50+29+4
3. 266.50+29+3.50
4. 299+29+3
5. 331+29+2.50
6. 362.50+29+2

AS long as she is repaying the loan in the first 5 months she will have enough money to repay the loan.

Summary:

ICA:

1) If you start a bank account with 8,000 Euros and your bank compounds the interest daily at an interest rate of 8%, how much money do you have at the year's end in Pesos? 1 Euro: 18.1 Pesos

2) The first credit card that you got charges 9.39 % interest to its customers and compounds that interest monthly. Within one day of getting your first credit card, you max out the credit limit by spending $1,500.00 . If you do not buy anything else on the card and you do not make any payments, how much money would you owe the company after 6 months? Answer must be in Swiss Francs. 1 USD: .88 CHF

3) A man invests A$ 6, 000 in an account that pays 4.5% interest per year,compounded quarterly. What is the amount of money that he will have after 2 years? Answer must be in Japanese Yen. 1 CAD: 92.8 JPY

4) An investment of 1300 British pounds earns 4.75% and compounds annually. What is the total amount after 7 years? Answer must be in South African Rang. 1 GBP:17.7 ZAR

5) Logan must repay a loan of 700 euros from his friend over a period of eight months. In each month he will pay 90 euros plus an amount of interest equal to 4 euros in the first month, 3.50 euros in the second reducing by half a euro each month until it reaches .50 in the eight month? How much will Logan pay in total?

6) Pablo invests 8,000 Swedish Francs at a rate of 5.7% compounded monthly. Calculate the amount in Pablo's account after 4 years. How much of that is interest?

Week 14

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Right Side...

Write a summary that answers the essential question.

Left Side...

Quick write:

Are you prepared for your notebook check?

How to calculate the value of one currency to another without a given exchange rate?

Essential Question Essential Question Essential Question Essential Question Essential Question Essential

Week 14, Lesson 4

1. Warm Up
2. Exchange Rate
3. ICA/H.W

Exchange Rate

How to calculate the value of one currency to another without a given exchange rate?

105

Warm-up:

1) Convert €45 to USA dollars, if the exchange rate is €1=$1.15 and the bank is charging commission of €4 per transaction. Show your calculations.

3) Daniel invests 9,000 Swedish Francs at a rate of 3.7% compounded monthly. Calculate the amount in Daniel's account after 2 years. How much of that is interest?

1) Convert €45 to USA dollars, if the exchange rate is €1= $1.15 and the bank is charging commission of €4 per transaction. Show your calculations.

€45 − €4 Commission = €41

$$\frac{€41}{1}\left(\frac{\$1.15}{€1}\right) = 41(\$1.15) = \$47.15$$

3) Daniel invests 9,000 Swedish Francs at a rate of 3.7% compounded monthly. Calculate the amount in Daniel's account after 2 years. How much of that is interest?

PV = 9,000 r = 3.7 K = 12 n = 2

$$FV = 9000\left(1 + \frac{3.7}{100(12)}\right)^{12(2)}$$

Run Math

$$9000(1+(3.7\div 1200))^{24} = 9690.16$$

$$9690.16 - 9000.00 = 690.16$$

The interest after two years is 690.16 Swedish Francs.

Exchange Rate

Standard 1.5b

If a problem requires multiple conversions, always remember that organizing your work will make the process less stressful.

Example: The exchange rate from US dollars (USD) to Canadian dollar (CAD) is given by 1 USD: 1.5 CAD. If Rebeca receives 400 Australian dollars (AUD) for 413 CAD, Calculate the value of the US dollar in Australian dollars.

Start

$$1\ \text{USD} \times \frac{1.5\ \text{CAD}}{1\ \text{USD}} \times \frac{400\ \text{AUD}}{413\ \text{CAD}} = \frac{1.5(400)}{413} = 1.45\ \text{AUD}$$

Finish

1 USD: 1.45 AUD

Summary:

ICA:

1) The exchange rate from US dollars (USD) to South African Rand (ZAR) is given by 1 USD: 10.6 ZAR. If Rebeca receives 5,000 Mexican Pesos (MXN) for 4,035 ZAR, Calculate the value of the US dollar in Mexican Pesos.

2) The exchange rate from Egyptian Pound (EGP) to Canadian dollars (CAD) is given by 1 EGP: .157CAD. If Ana receives 800 Australian dollars (AUD) for 824 CAD, Calculate the value of the Egyptian Pound in Australian dollars.

3) The exchange rate from British Pound (GBP) to Indian Rupee (INR) is given by 1 GBP: 102 INR. If Andrew receives 30 Euro (EUR) for 2,507 INR, Calculate the value of the British Pound in Euros.

4) The exchange rate from Japanese Yen (JPY) to US dollars (USD) is given by 102 JPY: 1 USD. If Alicia receives 78 Indian Rupee (INR) for 132 USD, Calculate the value of the Japanese Yen in Indian Rupee.

5) The exchange rate from Mexican Pesos (MXN) to Indian Rupee (INR) is given by 1 MXN: 4.6 INR. If Ashley receives 500 Canadian dollars (CAD) for 27,435 INR, Calculate the value of the Mexican Peso in Canadian dollars.

6) The exchange rate from Mexican Pesos (MXN) to Euros (EUR) is given by 1 MXN: .06 EUR. If Angel receives 11,803 Colombian Pesos (COP) for 80 MXN, Calculate the value of the Euro in Colombian Pesos.

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Right Side...

Write a summary that answers the essential question.

Left Side...

Quick write:

Are you prepared for your notebook check?

Attachments

Bubbles.docx

Week 12 Lesson 1.docx

ACT PREP VOCABULARY QUIZ.docx

ACT prep Quiz.docx