

10. Enter the necessary values in the images below to calculate the problems below.

a) Junior invests \$5000 in a bank account that pays 3.2% interest per year compounded quarterly. If he leaves the money in the account for 3 years, how much will his investment be worth?

Future Value:	<input type="text"/>	<input checked="" type="button" value="Calculate"/>
Present Value:	5000	<input type="button" value="Calculate"/>
Interest Rate percent (per year):	3.2	<input type="button" value="Calculate"/>
Payments per year:	4 quarterly	
Payment per period:	<input type="text"/>	<input type="button" value="Calculate"/>
Total # of payments (30 years =360, 15 years =180):	12	<input type="button" value="Calculate"/>



4 x 3 years

b) Brittany invests \$ 100 each month for 4 years. The account pays 5.4% interest per year compounded monthly. How much will she have at the end of 4 years?

Future Value:	<input type="text"/>	<input checked="" type="button" value="Calculate"/>
Present Value:	<input type="text"/>	<input type="button" value="Calculate"/>
Interest Rate percent (per year):	5.4	<input type="button" value="Calculate"/>
Payments per year:	12 monthly	
Payment per period:	100	<input type="button" value="Calculate"/>
Total # of payments (30 years =360, 15 years =180):	48	<input type="button" value="Calculate"/>

She is regularly making payments of \$100 not just once

12 x 4

c) Mugtaba borrows \$6000 to buy a car. She makes monthly payments for 5 years to pay it off. If the loan has a 8.2% interest rate compounded monthly, what is his monthly payment?

Future Value:	<input type="text"/>	<input type="button" value="Calculate"/>
Present Value:	6000	<input type="button" value="Calculate"/>
Interest Rate percent (per year):	8.2	<input type="button" value="Calculate"/>
Payments per year:	12	
Payment per period:	122.23	<input checked="" type="button" value="Calculate"/>
Total # of payments (30 years =360, 15 years =180):	60	<input type="button" value="Calculate"/>

How much does Mugtaba pay for the car in total?

$$\text{Total Paid} = 122.23 \times 60 = \$7333.80$$

How much interest does he pay?

$$\begin{aligned} \text{Interest} &= \text{Big} - \text{Small} \\ &= 7333.80 - 6000 = \$1333.80 \end{aligned}$$

11. If you can invest your money in a bank that pays 2% interest per year compounded semi-annually or in a different bank that pas 2% interest per year compounded weekly, which would you choose? Justify your answer.

You would choose the bank account that pays interest compounded WEEKLY because then you will earn more interest than the one that only has interest compounded semi-annually (which is only twice a year).

12. List the **advantages and disadvantages** of credit cards below.

Advantages	Disadvantages
Easier and safer to carry than money	Interest rates are insanely high
<p>You can earn points towards groceries or a trip or many other things</p> <p>You can buy items and not have to pay right away. You are allowed about a month before you need to pay back the amount.</p>	<p>You may be tempted to buy things that you really can't afford</p> <p>If you are irresponsible you could end up with a bad credit rating</p>

It can help you build your credit rating if you pay back your credit card bill on time always.

13. What are some of the factors that can affect your credit rating?

Whether or not you pay your bills/ credit cards on time	
How many loans you currently have	

How long you have been borrowing and paying back loans/credit cards

What type of loans you have? Mortgage and Car Loan are okay but having a credit card for every single store (like walmart, sears, home depot) and owing all those stores money is bad.

14. Use the formula Speed = Distance ÷ time to complete the table below.

$$S = \frac{d}{t}$$

Speed	Distance	Time
	200 km	2.5 hours
120 km/h		4 hours
60 km/h	350 km	

$$S = \frac{d}{t}$$

$$= \frac{200}{2.5} = 80 \text{ km/h}$$

$$\frac{200 \text{ km}}{2.5 \text{ h}}$$

$$S = \frac{d}{t}$$

$$120 = \frac{d}{4}$$

$$120 \times 4 = d$$

$$480 = d$$

$$480 \text{ km}$$

$$S = \frac{d}{t}$$

$$60 = \frac{350}{t}$$

$$\frac{60}{60} \times t = \frac{350}{60}$$

$$t = 5.8$$

$$\approx 6 \text{ hours}$$

15. Complete the table below if gas costs \$1.23/L

Distance	Fuel Consumption	Litres Used	Cost
300 km	6.5L/100km	? L = 300 km 6.5L = 100 km	
45 km	9.1L/100km	$\frac{x}{6.5} = \frac{300}{100}$ $100 \times x = 300 \times 6.5$ $100 \times x = 1950$ $\frac{1950}{100} = 19.5$	

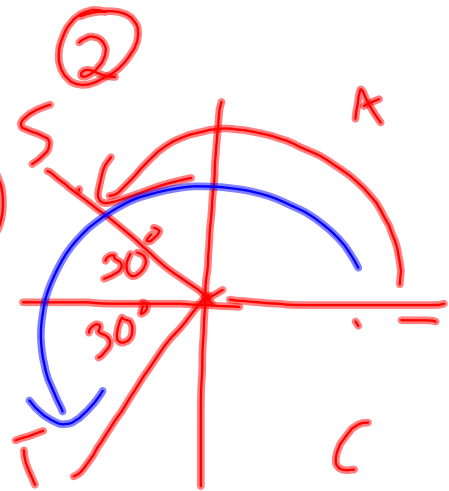
Determine θ if $\cos \theta = -0.87$

$$\textcircled{1} \quad \cos \theta_R = 0.87$$

$$\therefore \theta_R = \cos^{-1}(0.87) \\ \approx 30^\circ$$

$$\theta_P = 180^\circ - 30^\circ \\ = 150^\circ$$

$$\theta_P = 180^\circ + 30^\circ \\ = 210^\circ$$



$$\tan \theta = -2.45$$

$$\tan \theta_R = 2.45$$

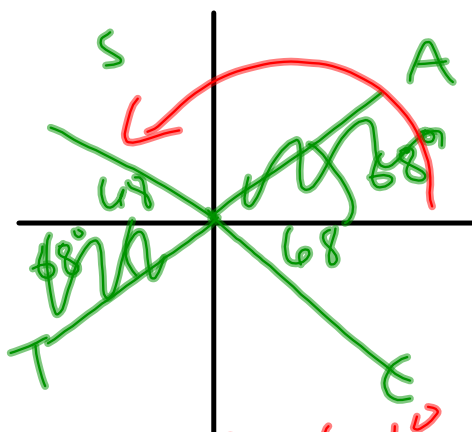
$$\theta_R = \tan^{-1}(2.45)$$

$$\theta_R = 67.79$$

$$\theta_R = 68^\circ$$

$$\theta_P = 68^\circ$$

$$\theta_P = 180^\circ + 68^\circ = 248^\circ$$



$$\theta_P = 180^\circ - 68^\circ$$

$$= 112^\circ$$

$$\theta_P = 360^\circ - 68^\circ$$

$$= 292^\circ$$

$$\cos \theta = 0.765$$

Find θ

$$\textcircled{1} \cos \theta_R = 0.765$$

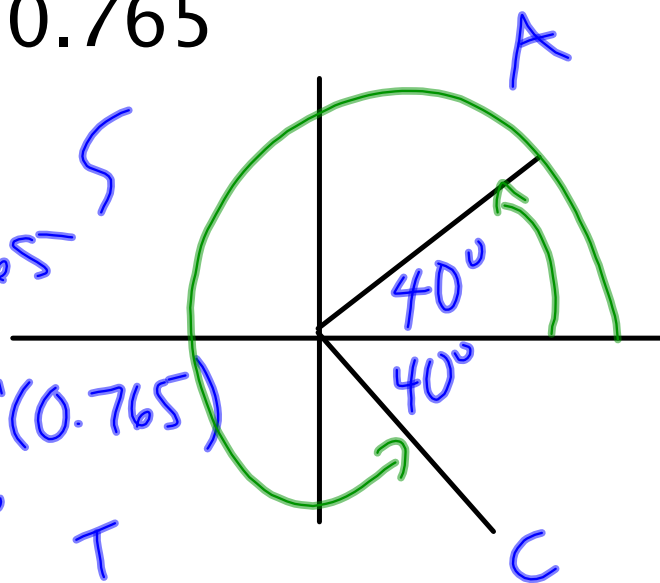
$$\theta_R = \cos^{-1}(0.765)$$

$$= 40^\circ$$

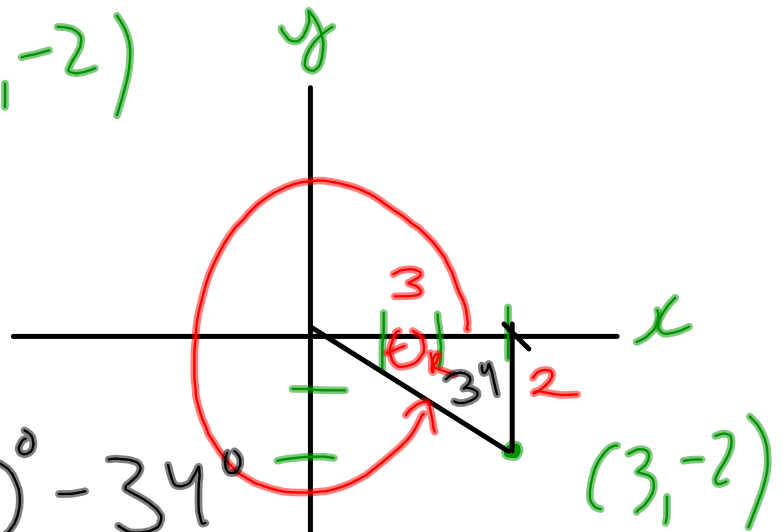
$\textcircled{2}$

$$\theta_P = 40^\circ$$

$$\theta_I = 360^\circ - 40^\circ = 320^\circ$$



ends at $(3, -2)$



$$\theta_p = 360^\circ - 34^\circ$$

$$= 326^\circ$$

$$\tan \theta_R = \frac{2}{3}$$

$$\theta_R = \tan^{-1}\left(\frac{2}{3}\right)$$

$$= 34^\circ$$

$(4, -6)$

SOH CAH TOA

$\tan \theta_R = \frac{6}{4}$

$\theta_R = \tan^{-1}\left(\frac{6}{4}\right)$

$= 56^\circ$

$\theta_P = 360^\circ - 56^\circ$

$= 304^\circ$

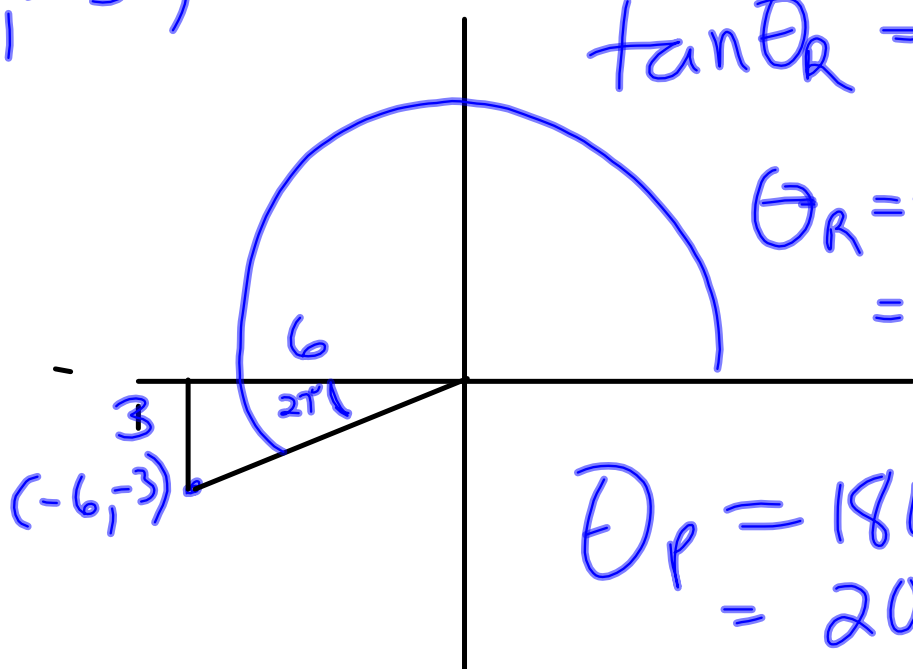
$r = \sqrt{4^2 + 6^2}$

$= \sqrt{52}$

$= 7.21$

$(-6, -3)$

$(-6, -3)$



$$\tan \theta_R = \frac{3}{6}$$

$$\theta_R = \tan^{-1}\left(\frac{3}{6}\right) = 27^\circ$$

$$\theta_P = 180^\circ + 27^\circ = 207^\circ$$

