

Physics 11

FIRST ASSIGNMENT - Substantive Student Activity *Student to complete:*

Date submitted:	
Student Name (last name, first name):	
Student home/cell phone:	
Student email (make sure it is legible):	



Student Declaration – REQUIRED for ENROLMENT!								
I agree to	I plan to spend _____ hrs/week on this course on the following days (circle):							
<ol style="list-style-type: none"> start my course promptly after enrolling create and follow a structured study routine, establish and maintain a consistent schedule for submitting assignments. 	<table border="1"> <tr> <td>M</td> <td>T</td> <td>W</td> <td>Th</td> <td>F</td> <td>Sat</td> <td>Sun</td> </tr> </table>	M	T	W	Th	F	Sat	Sun
M	T	W	Th	F	Sat	Sun		
I plan to complete this course by (date):								
Student Signature (required):								

_____ **Office use only** _____

Date marked:	
Teacher Signature:	
Site (circle one):	DL CE
Please check: ___ Photocopy of assignment (worth 5% of the course) attached. ___ Original returned to student. ___ Scanned to student.	
Approved by Principal:	

Posted to Schedule (√):	Post Active Date(√)	Home School Notified (√):	Added to Spreadsheet (√):
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About you!	Please tell us a bit about your prior learning and what your goals are for this course.
Last Science Course Taken:	
Did you complete it?	
What was your final mark?	
Why are you taking this course (university entrance, graduation etc...)	
What do you hope to get for a grade in this course?	
Science Strengths	
Science Weaknesses	
Learning Concerns:	
If/when you get stuck, what strategies do you have to get 'unstuck'?	
Which of the following ways do you prefer to communicate with the teacher? (circle all that apply)	<p>Phone online - Teams</p> <p>Online - Zoom email</p> <p>In person</p>
What are the best day(s) and time(s) of day to contact you?	<p>Day(s):</p> <p>Time(s) of day:</p>
Additional Comments:	

Please NOTE	
	Your completed introductory assignment is worth 5% of your overall grade.
	Use your OWN WORDS. Copying from the internet on this or any assignment could result in you being withdrawn from the course, as per our assessment policy .

Assignment Instructions

1. You can either print this First Assignment out and write on it or you can write on the pdf document electronically. Be sure to complete the Student information and Student Declaration (page 1), About You (page 2), and the Self-Assessment and Goal Setting (pages 5-10).
2. Work through the lessons for Unit 1. Completing the practice questions and the quizzes will help increase your science fluency. Complete the science questions in this booklet.
3. Return ALL pages of the assignment by either:
 - a. scanning and emailing it to the email address below.
 - b. taking pictures of the assignment with your cell phone, converting to a pdf document ([instructions here](#)) and emailing it to the address below.
4. Return the assignment by email to: hlessard@youlearn.ca
5. Once your assignment has been marked, you will receive feedback on the assignment and access to more of the Moodle course.

Self-Assessment & Goal Setting

As part of this course, you will assess your Core Competencies (7 in total) and create a learning goal. You will self-assess this goal several times in the semester and revise if necessary.

Core Competencies

In school, Core Competencies are developed through experiences and learning activities. Developing Core Competencies is a life-long process.

Instructions: For each Core Competency below, read the profiles. Determine which one best describes you right now and circle that profile.

Communicating

<p>Profile 1 With support, I respond meaningfully to communication from peers and adults.</p>	<p>Profile 2 With people I know, I can understand and share basic information about topics that are important to me, and answer simple, direct questions about my activities and experiences.</p>
<p>Profile 3 I participate in conversations for a variety of purposes (e.g., to connect, help, be friendly, learn and share) and choose an appropriate form. I can communicate clearly about topics I know and understand well and gather the basic information I need and present it.</p>	<p>Profile 4 I communicate clearly and purposefully, using a variety of forms appropriately. I am an active listener. I acquire the information I need for specific tasks and for my own interests and present it clearly.</p>
<p>Profile 5 I ask thought-provoking questions when appropriate. I can create a wide range of effective communications (including story) that feature powerful images and words, and I identify ways to change my communications to make them effective for different audiences. I acquire information about complex and specialized topics from various sources, synthesize it, and present it with thoughtful analysis.</p>	<p>Profile 6 I contribute purposefully to discussions and conversations. I synthesize, deepen, and transform my own and others' thinking. I can assess audience response and draw on a repertoire of strategies to increase my intended impact. I can acquire, critically analyze, and integrate well-chosen information from a range of sources.</p>

Collaborating

<p>Profile 1 In familiar situations, I can participate with others.</p>	<p>Profile 2 In familiar situations, I contribute during group activities, cooperate with others, and listen respectfully to their ideas.</p>
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<p>Profile 3</p> <p>I contribute during group activities with peers and share roles and responsibilities to achieve goals. I work with others to achieve a common goal and can evaluate our group processes and results.</p>	<p>Profile 4</p> <p>I can identify and apply roles and strategies to facilitate groupwork, including resolving conflicts and challenges and recognizing everyone's contributions to the group.</p>
<p>Profile 5</p> <p>I play a role in collectively monitoring the progress of the group and adjust my contributions as needed. I ask thought-provoking questions, integrate new information and various perspectives from others, and can disagree respectfully. I give, receive, and act on constructive feedback in support of our goals, and I can evaluate and revise plans with other group members.</p>	<p>Profile 6</p> <p>I can step outside of my comfort zone to create connections and develop working relationships with unfamiliar groups. I demonstrate my commitment to the group's purpose by taking on different roles as needed. I acknowledge different perspectives and seek out and create space for missing or marginalized voices. I summarize key themes to identify commonalities and focus on deepening or transforming our collective thinking and actions.</p>

Creative Thinking

<p>Profile 1</p> <p>I get ideas when I use my senses to explore and play.</p>	<p>Profile 2</p> <p>My ideas are fun, entertaining, or useful to me and my peers, and I have a sense of accomplishment. I can use my imagination to get new ideas of my own, or build on other's ideas, or combine other people's ideas in new ways, to create new things, or solve straightforward problems. I can usually make my ideas work within the constraints of a given form, problem, or materials if I keep playing with them.</p>
<p>Profile 3</p> <p>By pursuing my interests, I deliberately learn a lot about something by doing research, talking to others, or practicing, so that I can generate new ideas about it; the ideas often seem to just pop into my head. I build the skills I need to make my ideas work, and I usually succeed, even if it takes a few tries.</p>	<p>Profile 4</p> <p>I get ideas that are new to my peers. I have deliberate strategies for quieting my conscious mind (e.g., walking away for a while, doing something relaxing, being deliberately playful), so that I can be more creative.</p>

<p>Profile 5</p> <p>I can think “outside the box” to get innovative ideas and persevere to develop them. I can get new ideas that are innovative, may not have been seen before, and have an impact on my peers or in my community. I have interests and passions that I pursue over time. I look for new perspectives, problems, or approaches and am willing to take significant risks in my thinking in order to generate lots of ideas. I am willing to accept ambiguity, setbacks, and failure, and I use them to advance the development of my ideas.</p>	<p>Profile 6</p> <p>I can get ideas that are groundbreaking or disruptive and can develop them to form a body of work over time that has an impact in my community or beyond. I have deliberate strategies (e.g., free writing or sketching, meditation, thinking in metaphors and analogies) for getting new ideas intuitively. I have a strong commitment to a personal aesthetic and values, and the inner motivation to persevere over years if necessary to develop my ideas.</p>
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Critical and Reflective Thinking

<p>Profile 1</p> <p>I can explore materials and actions and can show whether I like something or not.</p>	<p>Profile 2</p> <p>I can ask questions, make predictions, and use my senses to gather information. I can tell or show others something about my thinking. I can contribute to and use simple criteria. I can find some evidence and make judgments. I can reflect on my work and experiences and tell others about something I learned.</p>
<p>Profile 3</p> <p>I can ask questions and consider options. I can use my observations, experience, and imagination to draw conclusions and make judgments. I can describe my thinking and how it is changing. I can establish goals individually and with others. I can connect my learning with my experiences, efforts, and goals. I give and receive constructive feedback.</p>	<p>Profile 4</p> <p>I can gather and combine new evidence with what I already know to assess my thinking, develop reasoned conclusions, judgments, or plans. I can assess my own efforts and experiences and identify new goals. I give, receive, and act on constructive feedback.</p>
<p>Profile 5</p> <p>I can evaluate and use well-chosen evidence to develop interpretations; identify alternatives, perspectives, and implications; and make judgments. I can gather, select, evaluate, and synthesize information. I take risks and recognize that I may not be immediately successful. I can examine and adjust my thinking. I accept constructive feedback and use it to move forward.</p>	<p>Profile 6</p> <p>I can examine evidence from various perspectives to analyze and make well-supported judgments about and interpretations of complex issues. I can articulate a keen awareness of my strengths, my aspirations and how my experiences and contexts affect my frameworks and criteria. I can offer detailed analysis, using specific terminology, of my progress, work, and goals.</p>

Personal Awareness and Responsibility

<p>Profile 1</p> <p>I can show a sense of accomplishment and joy, and express some wants, needs, and preferences. I can sometimes recognize my emotions.</p>	<p>Profile 2</p> <p>I can express my wants and needs and celebrate my efforts and accomplishments. I have some strategies that help me recognize and manage my feelings and emotions. I can describe how some specific choices can affect my well-being and participate in activities that support my well-being.</p>
<p>Profile 3</p> <p>I can take action toward meeting my own wants and needs and finding joy and satisfaction, and work toward a goal or solving a problem. I can use strategies that increase my feeling of well-being and help me manage my feelings and emotions. I can connect my actions with both positive and negative consequences and try to make adjustments; I accept feedback.</p>	<p>Profile 4</p> <p>I advocate for myself and my ideas; I take responsibility for using strategies to focus, manage stress, and accomplish my goals. I can tell when I am becoming angry, upset, or frustrated, and I have strategies to calm myself. I can make choices that benefit my well-being and keep me safe in the communities I belong to.</p>
<p>Profile 5</p> <p>I have valuable ideas to share. I am willing to explore controversial issues, and I can imagine and work toward change in myself and in the world. I use strategies for working toward a healthy and balanced lifestyle, for dealing with emotional challenges, and for finding peace in stressful times. I know how to find the social support I need.</p>	<p>Profile 6</p> <p>I can advocate for myself in stressful situations. I can take the initiative to inform myself about controversial issues and take ethical positions. I take ownership of my goals, learning, and behaviour. I recognize the implications of my choices and consult with others who may be affected by my decisions. I can identify my potential as a leader in the communities I belong to. I sustain a healthy and balanced lifestyle.</p>

Positive Personal and Cultural Identity

<p>Profile 1</p> <p>I know my name. I am aware of some of my family and/or caregiver relationships.</p>	<p>Profile 2</p> <p>With some help, I can identify some of my attributes. I can identify objects or images that represent things that are important to me and explain what I like and dislike. I can describe my family, home, and/or community (people and/or place).</p>
<p>Profile 3</p> <p>I can identify my individual characteristics and explain what interests me. I can describe different groups that I belong to.</p>	<p>Profile 4</p> <p>I can describe and demonstrate pride in my positive qualities, characteristics, and/or skills. I am able to represent aspects of my cultural contexts (such as family, communities, school, peer groups) through words and/or images, and describe some ways that I participate in, or am connected to, a community.</p>

<p>Profile 5</p> <p>I understand that my characteristics, qualities, strengths, and challenges make me unique and are an important part of the communities I belong to (including people and places). I understand that what I value influences the choices I make and how I present myself in various contexts (including online). I can explain how I am able to use my strengths to contribute in my home and/or communities.</p>	<p>Profile 6</p> <p>I can describe how aspects of my life experiences, family history, background, and where I live (or have lived) have contributed to who I am. I can identify ways in which my strengths can help me meet challenges, and how my challenges can be opportunities for growth.</p>
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Social Awareness and Responsibility

<p>Profile 1</p> <p>I like to be with my family and friends. I can help and be kind. I can tell when someone is sad or angry and try to make them feel better. I am aware that other people can be different from me.</p>	<p>Profile 2</p> <p>In familiar settings, I can interact with others and my surroundings respectfully. I can solve some problems myself and ask for help when I need it.</p>
<p>Profile 3</p> <p>I contribute to group activities that make my classroom, school, community, or natural world a better place. I can identify different perspectives on an issue, clarify problems, consider alternatives, and evaluate strategies. I can demonstrate respectful and inclusive behaviour with people I know. I can explain why something is fair or unfair.</p>	<p>Profile 4</p> <p>I can build relationships and be a thoughtful and supportive friend. I can identify ways my actions and the actions of others affect my community and the natural environment. I look for ways to make my classroom, school, community, or natural world a better place and identify small things I can do that could make a difference. I demonstrate respectful and inclusive behaviour in a variety of settings, and I recognize that everyone has something to offer.</p>
<p>Profile 5</p> <p>I can advocate and take action for my communities and the natural world. I maintain relationships with people from different generations. I can clarify problems or issues, generate multiple strategies, weigh consequences, compromise to meet the needs of others, and evaluate actions. I value differences; I appreciate that each person has unique gifts. I use respectful and inclusive language and behaviour, including in social media.</p>	<p>Profile 6</p> <p>I build and sustain positive relationships with diverse people, including people from different generations. I show empathy for others and adjust my behaviour to accommodate their needs. I advocate and take thoughtful actions to influence positive, sustainable change in my communities and in the natural world. I can analyze complex social or environmental issues from multiple perspectives and understand how I am situated in types of privilege. I act to support diversity and defend human rights and can identify how diversity is beneficial for the communities I belong to.</p>

Goal Setting

When setting a goal, choose something that is specific, measurable, attainable, and relevant. As you will be assessing this goal over the semester or year, you may want to have a goal that could be achieved within the semester or year ('short term').

Instructions: Using the Core Competencies as a guide, set an academic goal and write it below.

Look back at the goal you have just set. Is it: specific? measurable? attainable? relevant? If not, revise your goal.

PH11 – Unit 1 Assignment

GRAPHING, RELATIONSHIPS AND VECTORS

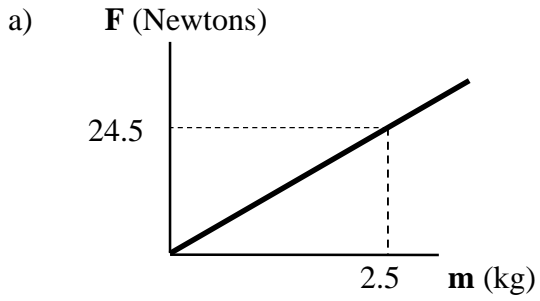
Name: _____

Date: _____

Total _____ = _____ %
62

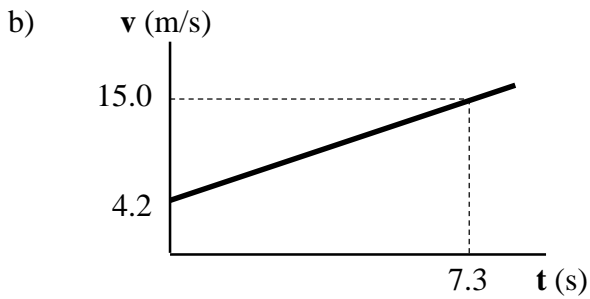
SHOW ALL WORK FOR FULL MARKS
(when possible)

1. Determine the slope and equation for the following graphs:



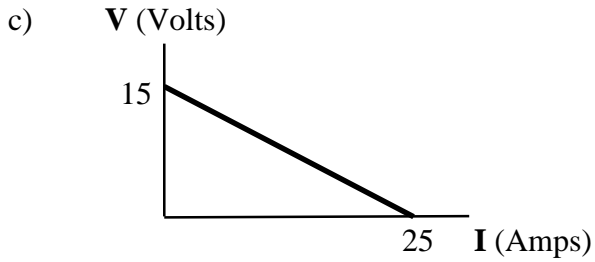
Slope: _____
1 mark

Equation: _____
1 mark



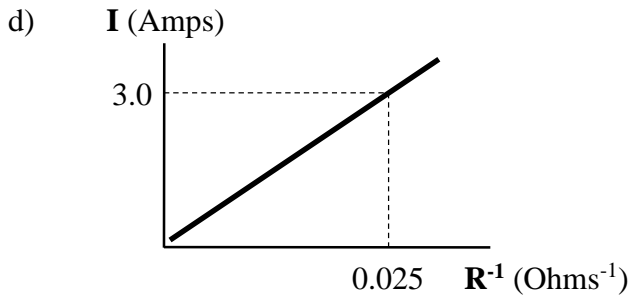
Slope: _____
1 mark

Equation: _____
1 mark



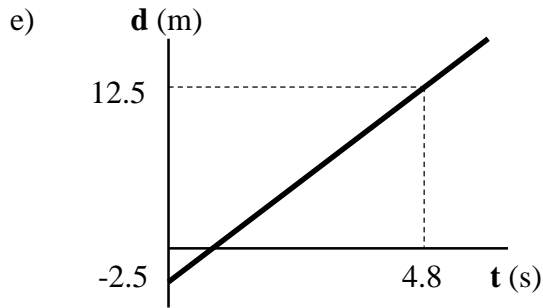
Slope: _____
1 mark

Equation: _____
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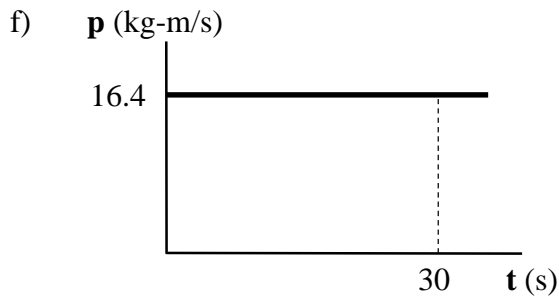
Slope: _____
1 mark

Equation: _____
1 mark



Slope: _____
1 mark

Equation: _____
1 mark



Slope: _____
1 mark

Equation: _____
1 mark

2. A straight line re-graph produces the formula $P = 17.1R^2$. Solve the following:

a) If $R = 39.2$ calculate P .

a) _____
1 mark

b) If $R = 2.4 \times 10^{-4}$ calculate P .

b) _____
1 mark

c) If $P = 48.4$ calculate R .

c) _____
1 mark

d) If $P = 4.2 \times 10^5$ calculate R .

d) _____
1 mark

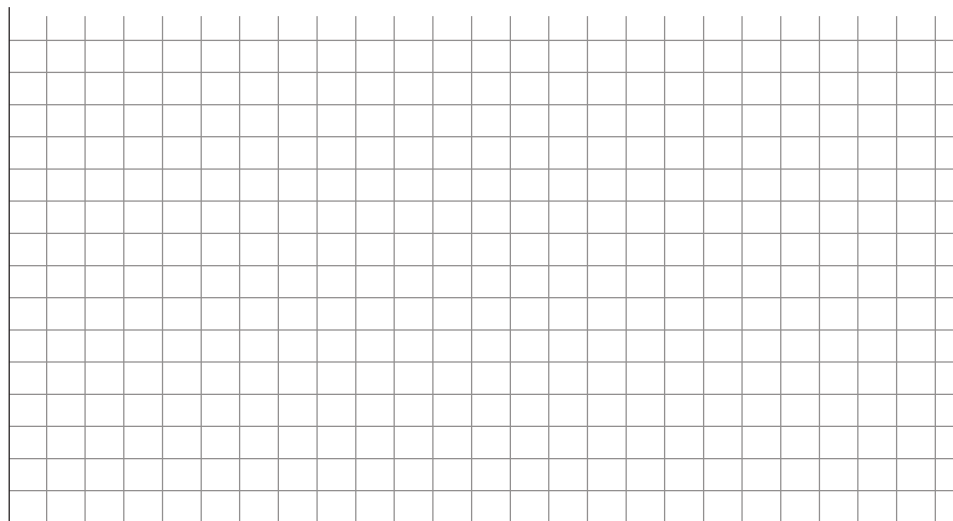
3. Examine the following data for an experiment involving the speed of a small electric toy car over a period of time.

Speed (cm/s)	20	41	63	82	105	125
Time (s)	0	1	2	3	4	5

Construct a proper graph for this data. In this case, **Time** is the 'cause' and **Speed** is the 'effect'. Be sure to include the following:

- a proper title;
- correctly labeled axes;
- all points accurately plotted;
- a best-fit straight line, drawn with a ruler, to show the trend of the points;
- a slope calculation in the space below;
- the equation of the line you plotted.

Title: _____



4 marks

Slope: _____
1 mark

Equation: _____
1 mark

4. Examine the following data of measurements for a variety of spherical objects.

Radius (cm)	0	3.0	5.0	7.0	9.0	10.0
Surface Area (cm²)	0	115	320	612	1020	1260

- a) Construct a proper graph for the data. In this case, **Radius** is the ‘cause’ and **Surface Area** is the ‘effect’. Be sure to include the following:
- a proper title;
 - correctly labeled axes;
 - all points accurately plotted;
 - a best-fit curved line, drawn free-hand, to show the trend of the points;

Title: _____



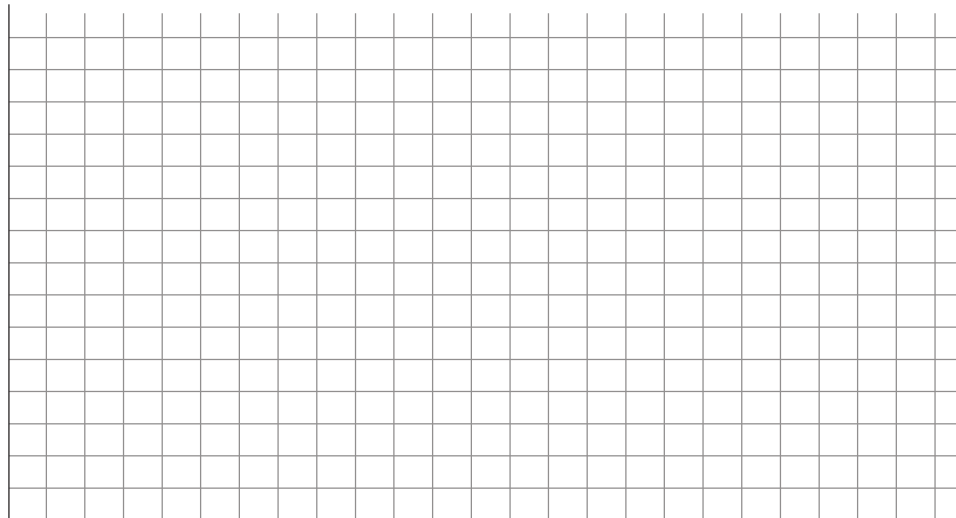
4 marks

b) Complete the table by performing the correct calculation on the x- values so that a straight line re-graph can be drawn.

Radius (cm)	0	3.0	5.0	7.0	9.0	10.0
Surface Area (cm²)	0	115	320	612	1020	1260

c) Now build this re-graph, find the slope, and make an equation that represents a relationship between Radius and Surface Area.

Title: _____



4 marks

Slope: _____
1 mark

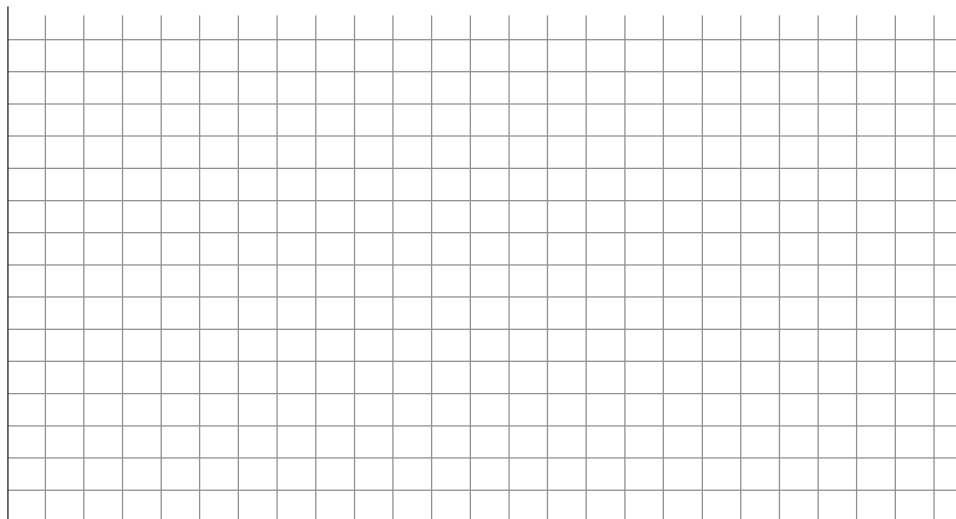
Equation: _____
1 mark

5. Examine the following data for an experiment involving a syringe and a pressure gauge.

Pressure (PSI)	32.0	21.0	14.0	12.0	8.0	7.0
Volume (cm³)	3.0	5.0	7	9	12	15.0

- a) Construct a proper graph for the data. In this case, **Volume** is the ‘cause’ and **Pressure** is the ‘effect’. Be sure to include the following:
- a proper title;
 - correctly labeled axes;
 - all points accurately plotted;
 - a best-fit curved line, drawn free-hand, to show the trend of the points;

Title: _____



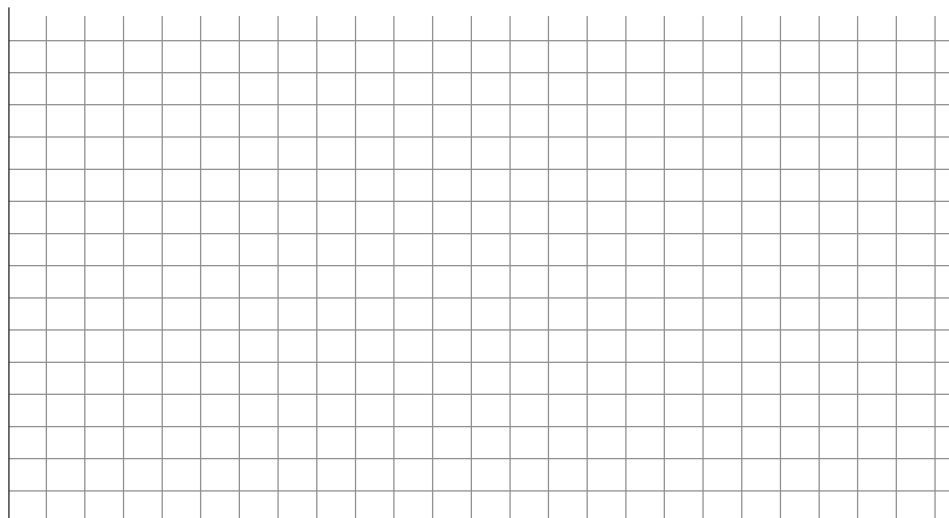
4 marks

b) Complete the table by performing the correct calculation on the x- values so that a straight line re-graph can be drawn.

Pressure (PSI)	32.0	21.0	14.0	12.0	8.0	7.0
Volume (cm³)	3.0	5.0	7	9	12	15.0

c) Now build this re-graph, find the slope, and make an equation that represents a relationship between Pressure and Volume.

Title: _____



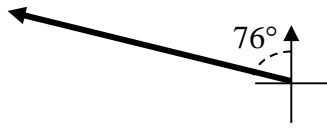
4 marks

Slope: _____
1 mark

Equation: _____
1 mark

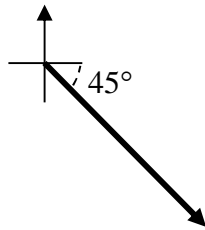
6. Describe the direction of each of the following vectors, relative to North, South, East or West.

a)



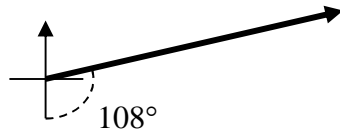
a) _____
1 mark

b)



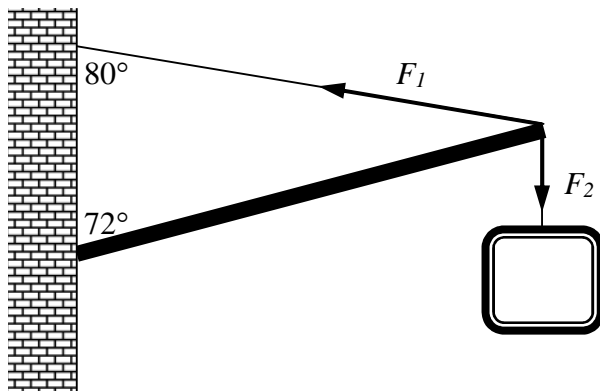
b) _____
1 mark

c)



c) _____
1 mark

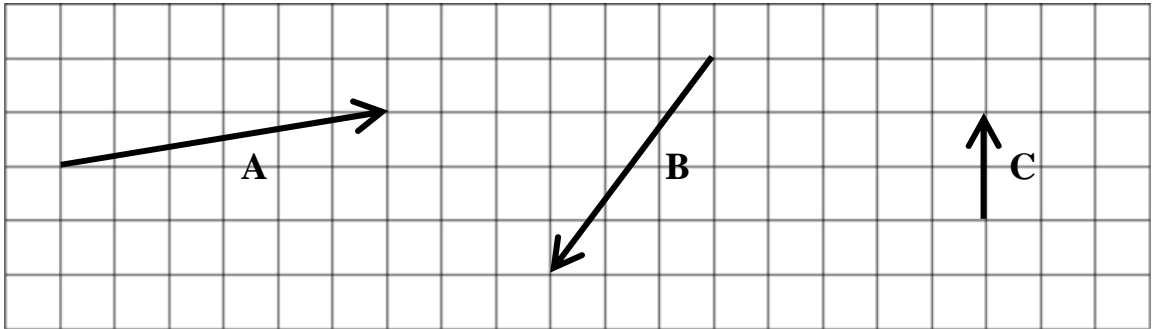
7. Determine the direction of the following force vectors, relative to the beam. Note: vectors are not drawn to scale. (2 marks)



F_1 : _____

F_2 : _____

8. Use a ruler to draw the resultant for each of the following vector operations:



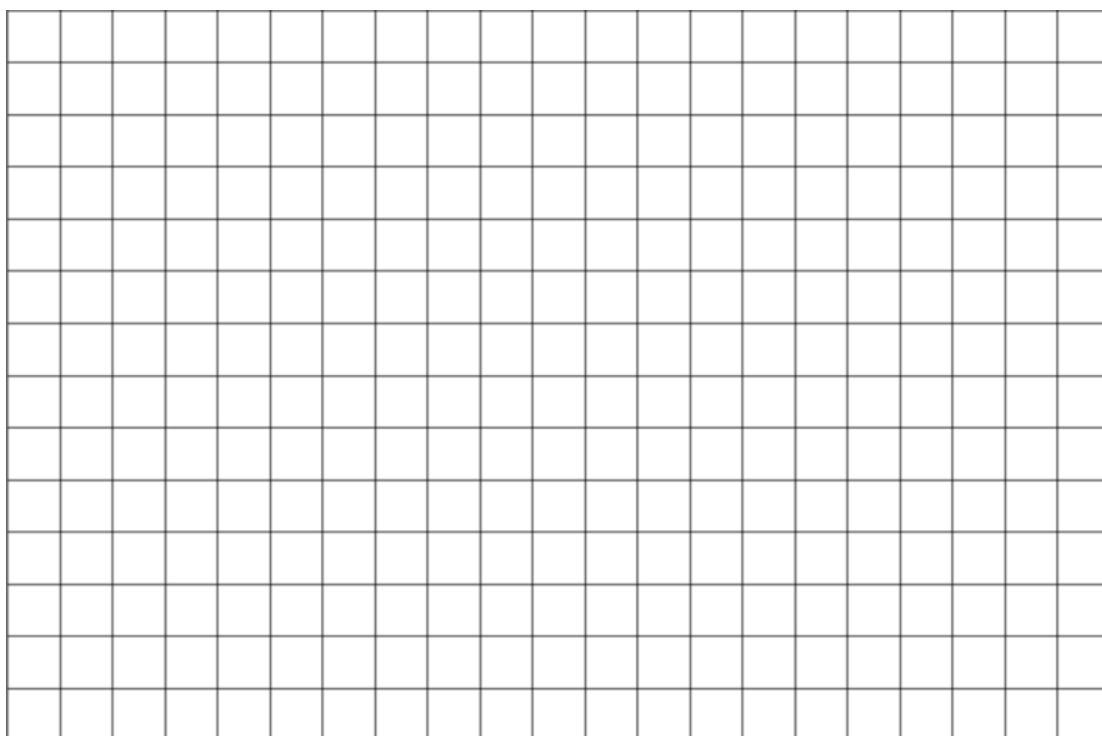
a) $\mathbf{C} + \mathbf{B}$ (2 marks)



b) $\mathbf{B + A - C}$ (3 marks)



c) $\mathbf{A - B + 3C}$ (3 marks)



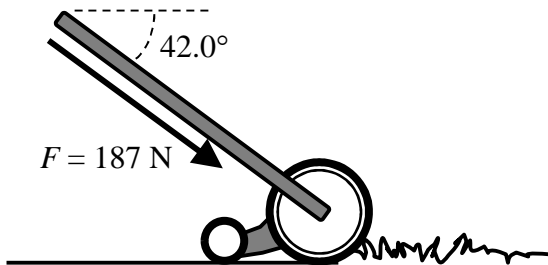
9. A pilot flies a plane 1450 km in a direction 33° N of W. How far did she travel:
a) in the north direction?

a) _____
2 marks

- b) in the west direction?

b) _____
2 marks

10. An environmentally conscious physics student mows her lawn with a push mower, exerting a force of 187 N along the handle as shown. How much force is actually being used to push the mower forward (horizontally) along the ground?



b) _____
3 marks