



Province of the  
EASTERN CAPE  
EDUCATION

**DIRECTORATE SENIOR CURRICULUM MANAGEMENT (SEN-FET)**

**HOME SCHOOLING SELF-STUDY WORKSHEET**

<b>SUBJECT</b>	<b>FITTING &amp; MACHINING</b>	<b>GRADE</b>	12	<b>DATE</b>	JUNE 2020
<b>TOPIC</b>	<b>FORCES &amp; MAINTENANCE SPECIFIC</b>	<b>TERM 1 REVISION</b>	()	<b>TERM 2 CONTENT</b>	(√)
<b>TIME ALLOCATION</b>	2 hrs.	<p style="text-align: center;"><b><u>TIPS TO KEEP HEALTHY</u></b></p> <ol style="list-style-type: none"><li>1. <b>WASH YOUR HANDS</b> thoroughly with soap and water for at least 20 seconds. Alternatively, use hand sanitizer with an alcohol content of at least 60%.</li><li>2. <b>PRACTICE SOCIAL DISTANCING</b> – keep a distance of 1m away from other people.</li><li>3. <b>PRACTISE GOOD RESPIRATORY HYGIENE:</b> cough or sneeze into your elbow or tissue and dispose of the tissue immediately after use.</li><li>4. <b>TRY NOT TO TOUCH YOUR FACE.</b> The virus can be transferred from your hands to your nose, mouth and eyes. It can then enter your body and make you sick.</li><li>5. <b>STAY AT HOME.</b></li></ol>			
<b>INSTRUCTIONS</b>					

### QUESTION 1

1.1 FIGURE 1.1 below shows a system of forces with four concurrent applied forces. Calculate the magnitude and direction of the equilibrant of this system of forces.

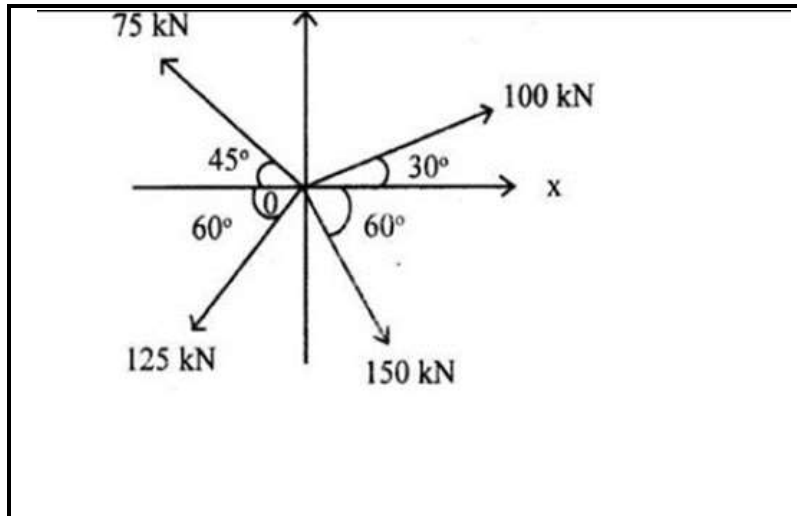


Figure 1.1

1.2 (May – June 19) FIGURE 1.2 below shows a system of forces with four coplanar forces acting onto the same point. Use calculations and determine the magnitude and direction of the resultant force for this system of forces.

HINT: Draw and complete the diagram in FIGURE 1.2 Show ALL the horizontal and vertical components before you do the calculation.

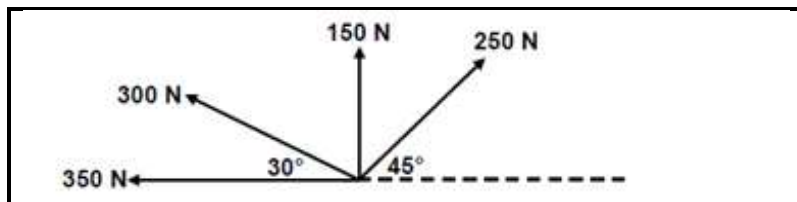


Figure 1.2

## **QUESTION 2**

2.1 Write down the following abbreviations in full:

2.1.1 PVC

2.1.2 GRP

2.1.3 LDPE

2.2 Why is it essential to use a cutting fluid on a milling or centre lathe?

2.3 Name the THREE factors that influence the coefficient of friction.

2.4 Give TWO reasons for using carbon fibre in the manufacture of bicycle frames.

2.5 In tabulated form compare ONE property and ONE use of the following thermoplastic materials:

2.5.1 Vesconite

2.5.2 Teflon

2.5.3 Nylon

2.6 State the THREE possible consequences for failure to do maintenance.

## **QUESTION 3**

3.1 Give TWO reasons why preventative maintenance is important for mechanical drive systems.

3.2 State TWO preventative maintenance procedures on gear drive systems.

3.3 State TWO causes of the malfunctioning of belt drive systems.

3.4 State TWO procedures that can be followed to reduce wear on a chain drive system.

3.5 State TWO properties of EACH of the following materials:

- 3.5.1 Fibre glass
- 3.5.2 Vesconite
- 3.5.3 Carbon fibre

3.6 Classify the following materials as thermoplastic composites or thermo-hardened (thermosetting) composites:

- 3.6.1 Teflon
- 3.6.2 Bakelite
- 3.6.3 Polyvinyl chloride (PVC)

3.7 Which material, rubber or thermo composites, has the higher coefficient of friction?