Province of the
<u>EASTERN CAPE</u>
EDUCATION

DIRECTORATE SENIOR CURRICULUM MANAGEMENT (SEN-FET)

HOME SCHOOLING SELF-STUDY WORKSHEET

SUBJECT	FITTING AND MACHINING	GRADE	12	DATE	JUNE 2020
TOPIC	JOIINING METHODS	TERM 1 REVISION	()	TERM 2 CONTENT	(√)
TIME ALLOCATION	2 hrs.		**TIPS TO KEEP HEALTHY**		
INSTRUCTIONS	This worksheet consists of questions normally asked in final examination based on Joining Methods. Attempt all questions before consulting the answer sheet.	1. **WASH YOUR HANDS** thoroughly with soap and water for at least 20 seconds. Alternatively, use hand sanitizer with an alcohol content of at least 60%. 2. **PRACTICE SOCIAL DISTANCING** – keep a distance of 1m away from other people. 3. **PRACTISE GOOD RESPIRATORY HYGIENE**: cough or sneeze into your elbow or tissue and dispose of the tissue immediately after use. 4. **TRY NOT TO TOUCH YOUR FACE.** The virus can be transferred from your hands to your nose, mouth and eyes. It can then enter your body and make you sick. 5. **STAY AT HOME.**			

QUESTION 1 A three-start square thread with a lead of 30 mm needs to be cut on a lathe. The crest diameter of the thread is 75 mm and the clearance angle is 3°.

Calculate the following:

1.1 Pitch diameter
1.2 Helix angle of the thread
1.3 Leading tool angle.

1.4 Following tool angle.

QUESTION 2 A two-start square thread with a lead of 45 mm has an outside diameter of 84 mm and a clearance of 3^0. Calculate the:

2.1 Helix angle of the thread
2.2 Leading angle of the thread

2.3 Trailing tool angle

QESTION 3

3.1 Draw a neat sketch of a metric V-screw thread and indicate the THREE diameters of the screw thread.

3.2 Explain what is meant by the lead of a screw thread.

3.3 A three-start square thread with a 4 mm pitch must be cut on a lathe. The crest diameter of the thread is 68 mm and the clearance angle is 3°.

Calculate the following:

3.3.1 The lead of the thread.

3.3.2 The mean circumference of the thread

3.3.3 The helix angle of the thread.

3.3.4 The leading tool angle.

3.3.5 The following tool angle.

QUESTION 4

4.1 With the aid of a sketch, show the screw profile, the included thread angle, the root diameter, the major diameter, tooth thickness and the pitch (mean) diameter of an ISO metric screw thread.

QUESTION 5

5.1   A screw thread is identified as M16 x 2.

Give the meaning of EACH of the following:

5.1.1 M
5.1.2 16
5.1.3 2

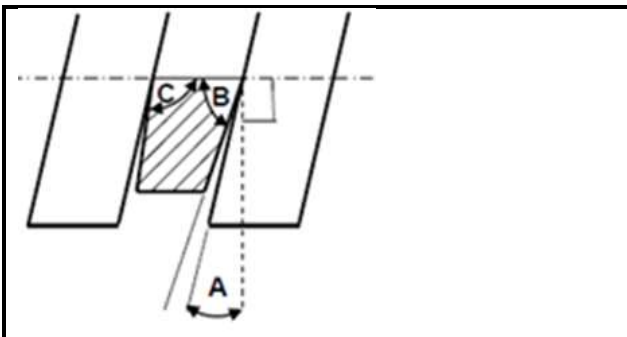**QUESTION 6** FIGURE 1 below shows a square cutting tool used to cut a left-hand square thread.

FIGURE 1

Identify the following angles as indicated in Figure 1 above:

    6.1 A
    6.2 B
    6.3 C

QUESTION 7
7.1 Convert 40,125º decimal into dms (degrees, minutes and seconds)