PLOTTING EXERCISE SEVEN - QUESTIONS ONE

1 Your ship is on a course of 130° T and its speed is 28 kts. At 1500 a contact was observed bearing 090° T at 12.0 miles at 1505 the bearing was 091½° T at 9.0 miles, and at 1510 the bearing was 095° T and the range 6.0 miles.
Find: CPA, time of CPA and the bearing of CPA.

Plotting 1 answers
1 CPA 1.1 nm, TCPA 1520, BCPA 175½° T
2 CPA 0.8 nm, TCPA 1021, BCPA 154° T
3 CPA 3.4 nm, TCPA 1240, BCPA 107° T
PLOTTING QUESTIONS TWO

1 Your course 320°T, speed 18 knots; radar observations:
   1000: true bearing 000° distance 10 miles
   1010: true bearing 000° distance 8 miles
Find course and speed of other vessel at 1010.

PLOTTING ANSWERS 2
1 course 278°T, speed 12 knots
2 course 000°T, speed 24 knots
3 course 018°T, speed 15.5 knots

2 Your course 020°T, speed 25 knots; radar observations:
   1100: true bearing 078° distance 10 miles
   1112: true bearing 076° distance 8.5 miles
Find course and speed of other vessel at 1112.

3 Your course 350°T, speed 22 knots; radar observations:
   2100: true bearing 290° distance 6 miles
   2112: true bearing 280° distance 4 miles
Find course and speed of other vessel at 2112.
PLOTTING QUESTIONS THREE

1. Your course 330° T, speed 9 knots; radar observations:
   1900: 009° T, distance 10.5 miles
   1905: 008.5° T, distance 9.5 miles
   1910: 008° T, distance 8.7 miles
   a) Find: CPA, TCPA, course and speed of other ship and aspect.
   b) State what action if any are you going to take.

2. Your course 250° T, speed 9 knots; radar observations:
   2310: 217° T, distance 5.8 miles
   2315: 214.5° T, distance 4.9 miles
   2320: 211° T, distance 4.0 miles
   a) Find: CPA, TCPA, course and speed of other ship and aspect.
   b) State what action if any are you going to take.

3. Your course 050° T, speed 11 knots; radar observations:
   0311: 261° Rel, distance 5.6 miles
   0316: 262° Rel, distance 4.8 miles
   0321: 263° Rel, distance 4.0 miles
   a) Find: CPA, TCPA, course and speed of other ship and aspect.
   b) State what action if any are you going to take.

4. Your course 350° T, speed 7 knots; radar observations:
   1703: 131° Rel, distance 5.2 miles
   1706: 131.5° Rel, distance 4.75 miles
   1709: 132° Rel, distance 4.3 miles
   a) Find: CPA, TCPA, course and speed of other ship and aspect.
   b) State what action if any are you going to take.

5. Your course 170° T, speed 6 knots; radar observations:
   1910: 10° Rel, distance 5.6 miles
   1916: 10° Rel, distance 4.7 miles
   1922: 10° Rel, distance 3.9 miles
   a) Find: CPA, TCPA, course and speed of other ship and aspect.
   b) State what action if any are you going to take.

6. Your course 350° T, speed 9 knots; radar observations:
   Target A
   2010: 336½° T, distance 11.0 miles
   Target B
   2010: 020° T, distance 10.8 miles
   a) Find: CPA, TCPA, course, speed and aspect of the other vessels
b) Identify the vessels that may pose a risk of collision and state what action if any are you going to take.

7. Your course 330°T, speed 11 knots; radar observations:
   Target A
   2210: 226° T, distance 3.2 miles
   2216: 235° T, distance 4.2 miles
   Target B
   2212: 151° T, distance 4.2 miles
   2222: 152° T, distance 3.5 miles
   a) Find: CPA, TCPA, course, speed and aspect of the other vessels
   b) Identify the vessels that may pose a risk of collision and state what action if any are you going to take.

8. Your course 210°T, speed 8 knots; radar observations:
   Target A
   0551: 110½° T, distance 5.2 miles
   0601: 112° T, distance 4.3 miles
   Target B
   0550: 234½° T, distance 3.3 miles
   0600: 248½° T, distance 2.2 miles
   a) Find: CPA, TCPA, course, speed and aspect of the other vessels
   b) Identify the vessels that may pose a risk of collision and state what action if any are you going to take.

9. Your course 200°T, speed 14 knots; radar observations:
   Target A
   1611: 187° T, distance 7.0 miles
   1621: 197° T, distance 3.4 miles
   Target B
   1615: 191° T, distance 8.0 miles
   1621: 177° T, distance 3.7 miles
   a) Find: CPA, TCPA, course, speed and aspect of the other vessels
   b) Identify the vessels that may pose a risk of collision and state what action if any are you going to take.

PLOTTING ANSWERS 3

The solutions given here are not necessarily the only correct answers, rather it is opinion offered after careful consideration of the practical aspects of the encounters as well as the content and intent of the collision regulations.
1 CPA 1.0 miles, TCPA, 1958, Course 250°T, Speed 8 Knots, Aspect Red 62°.
   Alter course 60° to starboard

2 CPA 1.2 miles TCPA 2339, Course 007°T, Speed 4.5 Knots, Aspect Green 25°.
   Alter course 60° to starboard

3 CPA 0.5 miles, TCPA 0344, Course 086°T, Speed 16.0 Knots, Aspect Green 48°.
   Reduce speed

4 CPA 0.3, TCPA, 1728, Course 329°T, Speed 12 Knots. Aspect, Red 07°.
   Alter course 30° to port

5 CPA Collision, TCPA 1943, Course 014°T, Speed 4.3 Knots, Aspect Red 14°.
   Alter to Starboard 60° immediately

6 **Target A**, CPA 4.3. TCPA 2108, Course 240°T, Speed 3.0 Knots, Aspect Red 88°, **Target B**, CPA 0.9, TCPA 2112, Course 246°T, Speed 4.8 knots, Aspect Red 25°.
   Alter course 60° to starboard

7 **Target A** is moving away so CPA has already passed, Course 301°T, Speed 16.2 Knots, Aspect Green 114°, **Target B** CPA 0.2, TCPA 2315, Course 331°T, Speed 15 Knots, Aspect Red 4°.
   Alter course 30° to port

8 **Target A**, CPA 0.6, TCPA 0635, Course 243°T, Speed 12 Knots Aspect Green 50°  **Target B**, CPA 1.5, TCPA, 0613, stopped.
   Reduce speed

9 **Target A**, CPA 1.1, TCPA 1629, Course 333°T, Speed 13.2 Knots Aspect Green 45°  **Target B**, CPA 1.5, TCPA, 1625, Course 024°T, Speed 31 Knots, Aspect Red 27°.
   Reduce speed