

TRIGONOMETRY: BEARINGS & TRIANGLE GEOMETRY**Best Guess Mastery Worksheet (Target Grade 4/5)****I Do**

A ship leaves a port A and sails 15 km on a bearing of 045° to a buoy B .

From B , the ship sails 20 km on a bearing of 135° to a lighthouse C .

Calculate the bearing of C from A .

Give your answer correct to 1 decimal place.

Answer = $^\circ$

TRIGONOMETRY: BEARINGS & TRIANGLE GEOMETRY**Best Guess Mastery Worksheet (Target Grade 4/5)****We Do**

A boat leaves a dock P and sails 12 km on a bearing of 045° to a marker Q .

From Q , the boat sails 16 km on a bearing of 135° to a buoy R .

Calculate the bearing of R from P .

Give your answer correct to 1 decimal place.

Answer = $^\circ$

TRIGONOMETRY: BEARINGS & TRIANGLE GEOMETRY**Best Guess Mastery Worksheet (Target Grade 4/5)****You Do 1**

A ship leaves port X and sails 24 km on a bearing of 045° to point Y .

From Y , the ship sails 18 km on a bearing of 135° to point Z .

Calculate the bearing of Z from X .

Give your answer correct to 1 decimal place.

Answer = $^\circ$

TRIGONOMETRY: BEARINGS & TRIANGLE GEOMETRY**Best Guess Mastery Worksheet (Target Grade 4/5)****You Do 2**

A yacht sails 30 km from port M on a bearing of 045° to station N .

From N , the yacht sails 40 km on a bearing of 135° to station O .

Calculate the bearing of O from M .

Give your answer correct to 1 decimal place.

Answer = $^\circ$

TRIGONOMETRY: BEARINGS & TRIANGLE GEOMETRY**Best Guess Mastery Worksheet (Target Grade 4/5)****Challenge 1**

A cruise liner leaves port E and travels 10 km on a bearing of 045° to island F .

From F , the liner travels 24 km on a bearing of 135° to island G .

Calculate the bearing of G from E .

Give your answer correct to 1 decimal place.

Answer = $^\circ$

TRIGONOMETRY: BEARINGS & TRIANGLE GEOMETRY**Best Guess Mastery Worksheet (Target Grade 4/5)****Challenge 2**

A ferry departs from terminal S and sails 9 km on a bearing of 045° to platform T .

From T , the ferry sails 12 km on a bearing of 135° to platform U .

Calculate the bearing of U from S .

Give your answer correct to 1 decimal place.

Answer = $^\circ$

Answers & Worked Solutions

I Do:

At B, the bearing from A (045°) means angle of the triangle at B is formed by north lines.

Specifically, angle $ABC = 90^\circ$ (since $135^\circ - 045^\circ = 90^\circ$).

Triangle ABC is a right-angled triangle at B with $AB = 15$ km and $BC = 20$ km.

Hypotenuse $AC = \sqrt{(15^2 + 20^2)} = \sqrt{(225 + 400)} = \sqrt{625} = 25$ km.

Angle $CAB = \tan^{-1}(20 \div 15) = 53.13^\circ$.

Bearing of C from A = $045^\circ + 53.13^\circ = \mathbf{98.1^\circ}$

We Do:

Right-angled triangle at Q with $PQ = 12$ km and $QR = 16$ km.

$PR = \sqrt{(12^2 + 16^2)} = \sqrt{(144 + 256)} = \sqrt{400} = 20$ km.

Angle $QPR = \tan^{-1}(16 \div 12) = 53.13^\circ$.

Bearing of R from P = $045^\circ + 53.13^\circ = \mathbf{98.1^\circ}$

You Do 1:

Right-angled triangle at Y with $XY = 24$ km and $YZ = 18$ km.

$XZ = \sqrt{(24^2 + 18^2)} = \sqrt{(576 + 324)} = \sqrt{900} = 30$ km.

Angle $YXZ = \tan^{-1}(18 \div 24) = 36.87^\circ$.

Bearing of Z from X = $045^\circ + 36.87^\circ = \mathbf{81.9^\circ}$

You Do 2:

Right-angled triangle at N with $MN = 30$ km and $NO = 40$ km.

$MO = \sqrt{(30^2 + 40^2)} = \sqrt{(900 + 1600)} = \sqrt{2500} = 50$ km.

Angle $NMO = \tan^{-1}(40 \div 30) = 53.13^\circ$.

Bearing of O from M = $045^\circ + 53.13^\circ = \mathbf{98.1^\circ}$

Challenge 1:

Right-angled triangle at F with $EF = 10$ km and $FG = 24$ km.

$EG = \sqrt{(10^2 + 24^2)} = \sqrt{(100 + 576)} = \sqrt{676} = 26$ km.

Angle $FEG = \tan^{-1}(24 \div 10) = 67.38^\circ$.

Bearing of G from E = $045^\circ + 67.38^\circ = \mathbf{112.4^\circ}$

Challenge 2:

Right-angled triangle at T with $ST = 9$ km and $TU = 12$ km.

$SU = \sqrt{(9^2 + 12^2)} = \sqrt{(81 + 144)} = \sqrt{225} = 15$ km.

Angle $TSU = \tan^{-1}(12 \div 9) = 53.13^\circ$.

Bearing of U from S = $045^\circ + 53.13^\circ = \mathbf{98.1^\circ}$