

M.V. TWOSUCH LOADING TABLES ASSIGNMENT TWO ANSWERS

CONDITIONS [A](#) [B](#) [C](#) [D](#) [E](#)

ANSWER CONDITION A

**You load 8 Tonnes of ice on deck amidships. Its K.G.=3.47Mtr, L.C.G.=0, F.S.N.=4.
Is your vessel safe?**

(Information supplied courtesy Marine Safety, WA Department for Planning and Infrastructure. Extracts by Ranger Hope © 2008).

| Item | Tonnes | V.C.G. | Vert. Moment | L.C.G. +/- | Long. Moment | F.S.N. |
|---------------------|--------|--------|--------------|------------|--------------|--------|
| Fresh water | 8.9 | 2.06 | 18.33 | +5.05 | +44.95 | |
| Fwd FO P&S | 9.0 | 1.78 | 16.02 | +3.45 | +31.05 | |
| Fwd D/B FO P&S | 13.10 | 1.17 | 15.33 | +1.25 | +16.38 | |
| Aft D/B FO P&S | 12.80 | 1.20 | 15.36 | -1.78 | -22.78 | |
| ER Wing FO P&S | 12.60 | 2.40 | 30.24 | -4.83 | -60.86 | |
| Lub Oil | 0.55 | 2.50 | 1.38 | -7.90 | - 4.35 | |
| Crew & Effects | 1.00 | 4.00 | 4.00 | +6.00 | +6.00 | |
| Stores | 4.00 | 3.00 | 12.00 | - | - | |
| Provisions | 2.00 | 2.00 | 4.00 | +7.00 | +14.00 | |
| Ice | 8.00 | 3.47 | 27.76 | 0.00 | 0.00 | 4.00 |
| | | | | | | |
| Deadweight | 71.95 | | 144.42 | | +24.39 | 4.00 |
| Lightship | 148.46 | 3.48 | 516.61 | -0.65 | -96.00 | - |
| Displacement | 220.41 | 2.999 | 661.03 | -0.325 | -71.61 | 0.0181 |

| | | |
|---------------|----------|----------------------------|
| K.G | 2.999Mtr | L.C.G. -0.325Mtr |
| F.S.N. | 0.018Mtr | |
| Kgf | 3.017Mtr | |

Curves of limiting KG & LCG.

Both safe.

ANSWER CONDITION B

–You land 8 Tonnes of fish on deck. Its K.G.=5.00Mtr, L.C.G.=7.00, F.S.N.=5. Is your vessel safe?

| Item | Tonnes | V.C.G. | Vert. Moment | L.C.G. +/- | Long. Moment | F.S.N. |
|---------------------|--------|--------|--------------|------------|--------------|--------|
| Water tank | 1.78 | 1.26 | 2.24 | +4.88 | +8.69 | 1.30 |
| Fuel P&S | 9.50 | 2.25 | 21.37 | -4.77 | -45.32 | 0.88 |
| Lub Oil | 0.10 | 2.50 | 0.25 | -7.90 | -0.79 | 0.18 |
| Crew & Effects | 1.00 | 4.00 | 4.00 | +6.00 | +6.00 | - |
| Stores | 2.00 | 3.00 | 6.00 | - | - | - |
| Provisions | 0.40 | 2.00 | 0.80 | +7.00 | +2.8 | - |
| Brine Tank | 3.00 | 4.40 | 13.20 | -5.50 | -16.50 | - |
| Cod end load | 0.50 | 11.40 | 5.70 | -5.50 | -2.75 | - |
| Catch | 4.80 | 2.60 | 12.48 | +0.50 | -2.40 | - |
| Fish on deck | 8.00 | 5.00 | 40.00 | -7.00 | -56.00 | 5.00 |
| Deadweight | 31.08 | | 106.04 | | -106.27 | 7.36 |
| Lightship | 148.46 | 3.48 | 516.61 | -0.65 | -96.00 | - |
| Displacement | 179.54 | 3.47 | 622.65 | -1.1 | -202.27 | |

| | | | |
|---------------|---------|---------------|----------|
| K.G | 3.47Mtr | L.C.G. | -1.12Mtr |
| F.S.N. | 0.04 | KM | 3.85Mtr |
| Kgf | 3.51Mtr | GM | 0.38Mtr |

Curves of limiting KG & LCG

Both unsafe.

ANSWER CONDITION C

-You land 10 Tonnes of fish on deck. Its K.G.= 6.00Mtr, L.C.G.= -4.00, F.S.N.=5. Is your vessel safe?

| Item | Tonnes | V.C.G. | Vert. Moment | L.C.G. +/- | Long. Moment | F.S.N. |
|---------------------|--------|--------|--------------|------------|--------------|--------|
| Water tank | 1.78 | 1.26 | 2.24 | +4.88 | +8.69 | 1.30 |
| Fuel P&S | 9.50 | 2.25 | 21.37 | -4.77 | -45.32 | 0.88 |
| Lub Oil | 0.10 | 2.50 | 0.25 | -7.90 | -0.79 | 0.18 |
| Crew & Effects | 1.00 | 4.00 | 4.00 | +6.00 | +6.00 | - |
| Stores | 2.00 | 3.00 | 6.00 | - | - | - |
| Provisions | 0.40 | 2.00 | 0.80 | +7.00 | +2.8 | - |
| Brine Tank | 3.00 | 4.40 | 13.20 | -5.50 | -16.50 | - |
| Cod end load | 0.50 | 11.40 | 5.70 | -5.50 | -2.75 | - |
| Catch | 4.80 | 2.60 | 12.48 | +0.50 | -2.40 | - |
| Fish on deck | 10.00 | 6.00 | 60.00 | -4.00 | -40.00 | 5.00 |
| Deadweight | 33.08 | | 126.04 | | -90.27 | 7.36 |
| Lightship | 148.46 | 3.48 | 516.61 | -0.65 | -96.00 | - |
| Displacement | 181.54 | 3.54 | 642.65 | -1.00 | -186.27 | 7.36 |

| | | |
|---------------|---------|-----------------------|
| K.G | 3.54Mtr | L.C.G -1.02Mtr |
| F.S.N. | 0.04 | |
| Kgf | 3.58Mtr | |
| | | KM 3.85Mtr |
| | | GM 0.31Mtr |

Curves of limiting KG & LCG

Both are unsafe.

ANSWER CONDITION D

-You land 3 Tonnes of fish on deck. Its K.G.= 2.50Mtr, L.C.G.= -4.00,
F.S.N.=3. Is your vessel safe?

| Item | Tonnes | V.C.G. | Vert. Moment | L.C.G. +/- | Long. Moment | F.S.N. |
|---------------------|--------|--------|--------------|------------|--------------|--------|
| Water tank | 1.78 | 1.26 | 2.24 | +4.88 | +8.69 | 1.30 |
| ER Wing FO P&S | 4.75 | 2.05 | 9.74 | -4.70 | -22.33 | 0.88 |
| Lub Oil | 0.10 | 2.50 | 0.25 | -7.90 | -0.79 | 0.18 |
| Crew & Effects | 1.00 | 4.00 | 4.00 | +6.00 | +6.00 | - |
| Stores | 2.00 | 3.00 | 6.00 | - | - | - |
| Provisions | 0.40 | 2.00 | 0.80 | +7.00 | +2.8 | - |
| Catch | 4.80 | 2.60 | 12.48 | +0.50 | -2.40 | - |
| Fish on deck | 3.00 | 2.50 | 7.50 | -4.00 | -12.00 | 3.00 |
| Deadweight | 17.83 | | 43.01 | | -20.03 | 5.36 |
| Lightship | 146.46 | 3.48 | 516.61 | -0.65 | -96.00 | - |
| Displacement | 166.29 | 3.37 | 559.62 | -0.67 | -116.03 | 5.36 |

| | | | |
|---------------|---------|--------------|----------|
| K.G | 3.37Mtr | L.C.G | -0.69Mtr |
| F.S.N. | 0.03 | KM | 3.89Mtr |
| Kgf | 3.4Mtr | GM | 0.52Mtr |

Curves of limiting KG & LCG Both safe.

ANSWER CONDITION E

-You land 4 Tonnes of fish on deck. Its K.G.= 3.00Mtr L.C.G.= -5.00,
F.S.N.=4. Is your vessel safe?

| Item | Tonnes | V.C.G. | Vert. Moment | L.C.G. +/- | Long. Moment | F.S.N. |
|---------------------|--------|--------|--------------|------------|--------------|--------|
| Water tank | 1.78 | 1.26 | 2.24 | +4.88 | +8.69 | 1.30 |
| ER Wing FO P&S | 4.75 | 2.05 | 9.74 | -4.70 | -22.33 | 0.88 |
| Lub Oil | 0.10 | 2.50 | 0.25 | -7.90 | -0.79 | 0.18 |
| Crew & Effects | 1.00 | 4.00 | 4.00 | +6.00 | +6.00 | - |
| Stores | 2.00 | 3.00 | 6.00 | - | - | - |
| Provisions | 0.40 | 2.00 | 0.80 | +7.00 | +2.8 | - |
| Catch | 4.80 | 2.60 | 12.48 | +0.50 | -2.40 | - |
| Fish on deck | 4.00 | 3.00 | 12.00 | -5.00 | -20.00 | 4.00 |
| Deadweight | 18.83 | | 47.51 | | -28.03 | 6.36 |
| Lightship | 148.46 | 3.48 | 516.61 | -0.65 | -96.00 | - |
| Displacement | 167.29 | 3.37 | 564.12 | -0.71 | -124.03 | 6.36 |

| | | | |
|---------------|------|--------------|-------|
| K.G | 3.37 | L.C.G | -0.74 |
| F.S.N. | 0.04 | KM | 3.89 |
| Kgf | 3.41 | GM | 0.52 |

Curves of limiting KG & LCG Yes to both.