



# RACE OFFICIALS NATIONAL CONFERENCE

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# **SPEED AND DISTANCE CHARTS FOR THE OLYMPIC CLASSES**

## **CLASSES**

**Laser**

**Laser Radial**

**470**

**Finn**

**Star**

**49er**

**RS:X**

## **COURSE CONFIGURATIONS**

**Windward / Leeward**

**Trapezoid**

## **DATA COLLECTION SHEETS**

**Windward / Leeward**

**Trapezoid**





## SAILING COURSE TIMES

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49er

UPWIND/DOWNWIND INTERNATIONAL COURSES 1, 2, 3 LAPS

Speed in minutes per mile

Target time for races 30 minutes

Wind Range	5 - 8 Knots					8 - 12 Knots					12 - 15 Knots					15+ Knots				
	Upwind Speed		Run Speed		Leg Length	Upwind Speed		Run Speed		Leg Length	Upwind Speed		Run Speed		Leg Length	Upwind Speed		Run Speed		Leg Length
MINS		time		MINS		time		MINS			time		MINS			time		MINS		
N.Miles	1lap	2laps	3laps			1lap	2laps	3laps			1lap	2laps	3laps			1lap	2laps	3laps		
0.5	20.0	40.0	60.0	12.5	7.5	9.0	18.0	27.0	6.0	3.0	7.5	15.0	22.5	5.0	2.5	6.0	12.0	18.0	4.0	2.0
0.6	24.0	48.0	72.0	15.0	9.0	10.8	21.6	32.4	7.2	3.6	9.0	18.0	27.0	6.0	3.0	7.2	14.4	21.6	4.8	2.4
0.7	28.0	56.0	84.0	17.5	10.5	12.6	25.2	37.8	8.4	4.2	10.5	21.0	31.5	7.0	3.5	8.4	16.8	25.2	5.6	2.8
0.8	32.0	64.0	96.0	20.0	12.0	14.4	28.8	43.2	9.6	4.8	12.0	24.0	36.0	8.0	4.0	9.6	19.2	28.8	6.4	3.2
0.9	36.0	72.0	108.0	22.5	13.5	16.2	32.4	48.6	10.8	5.4	13.5	27.0	40.5	9.0	4.5	10.8	21.6	32.4	7.2	3.6
1.0	40.0	80.0	120.0	25.0	15.0	18.0	36.0	54.0	12.0	6.0	15.0	30.0	45.0	10.0	5.0	12.0	24.0	36.0	8.0	4.0
1.1	44.0	88.0	132.0	27.5	16.5	19.8	39.6	59.4	13.2	6.6	16.5	33.0	49.5	11.0	5.5	13.2	26.4	39.6	8.8	4.4
1.2	48.0	96.0	144.0	30.0	18.0	21.6	43.2	64.8	14.4	7.2	18.0	36.0	54.0	12.0	6.0	14.4	28.8	43.2	9.6	4.8
1.3	52.0	104.0	156.0	32.5	19.5	23.4	46.8	70.2	15.6	7.8	19.5	39.0	58.5	13.0	6.5	15.6	31.2	46.8	10.4	5.2
1.4	56.0	112.0	168.0	35.0	21.0	25.2	50.4	75.6	16.8	8.4	21.0	42.0	63.0	14.0	7.0	16.8	33.6	50.4	11.2	5.6
1.5	60.0	120.0	180.0	37.5	22.5	27.0	54.0	81.0	18.0	9.0	22.5	45.0	67.5	15.0	7.5	18.0	36.0	54.0	12.0	6.0



## SAILING COURSE TIMES

Laser                      TRAPEZOIDAL

Assume 1-2 = 2/3 distance up

Reach Length = 0.2nm

Speed in minutes per mile

Wind Rang		5 - 8 Knots			8 - 12 Knots			
Upwind Speed		20					18.5	
Run Speed		17	Up	Down			12	Up
Reach Speed		12	Leg	Leg			9	Leg
Leg Length		MINS	time	time			MINS	time
N.Miles	I/O 1	I/O 2			I/O 1	I/O 2	I/O 3	
0.50	37.0	55.5	10.0	8.5	30.5	45.75	61.00	9.3
0.55	40.7	61.1	11.0	9.4	33.6	50.33	67.10	10.2
0.60	44.4	66.6	12.0	10.2	36.6	54.90	73.20	11.1
0.65	48.1	72.2	13.0	11.1	39.7	59.48	79.30	12.0
0.70	51.8	77.7	14.0	11.9	42.7	64.05	85.40	13.0
0.75	55.5	83.3	15.0	12.8	45.8	68.63	91.50	13.9
0.80	59.2	88.8	16.0	13.6	48.8	73.20	97.60	14.8
0.85	62.9	94.4	17.0	14.5	51.9	77.78	103.70	15.7
0.90	66.6	99.9	18.0	15.3	54.9	82.35	109.80	16.7
0.95	70.3	105.5	19.0	16.2	58.0	86.93	115.90	17.6
1.00	74.0	111.0	20.0	17.0	61.0	91.50	122.00	18.5
1.05	77.7	116.6	21.0	17.9	64.1	96.08	128.10	19.4



## COURSE TIMINGS Trapezoid course

Class

Date

# DATA COLLECTION SHEET

Elapsed Time		Race 1	Race 2	Race 3
	Mark 1			
	Mark 2 / 4			
	Mark 3 / 1			
	Mark 2 / 4			
	Mark 3 / 1			
	Mark 2			
	Mark 3			
	Finish			
Wind speed				
Distance Start to mark 1				

Are all other distances approximately as Course diagram

YES / NO

YES / NO

YES / NO

Other comments

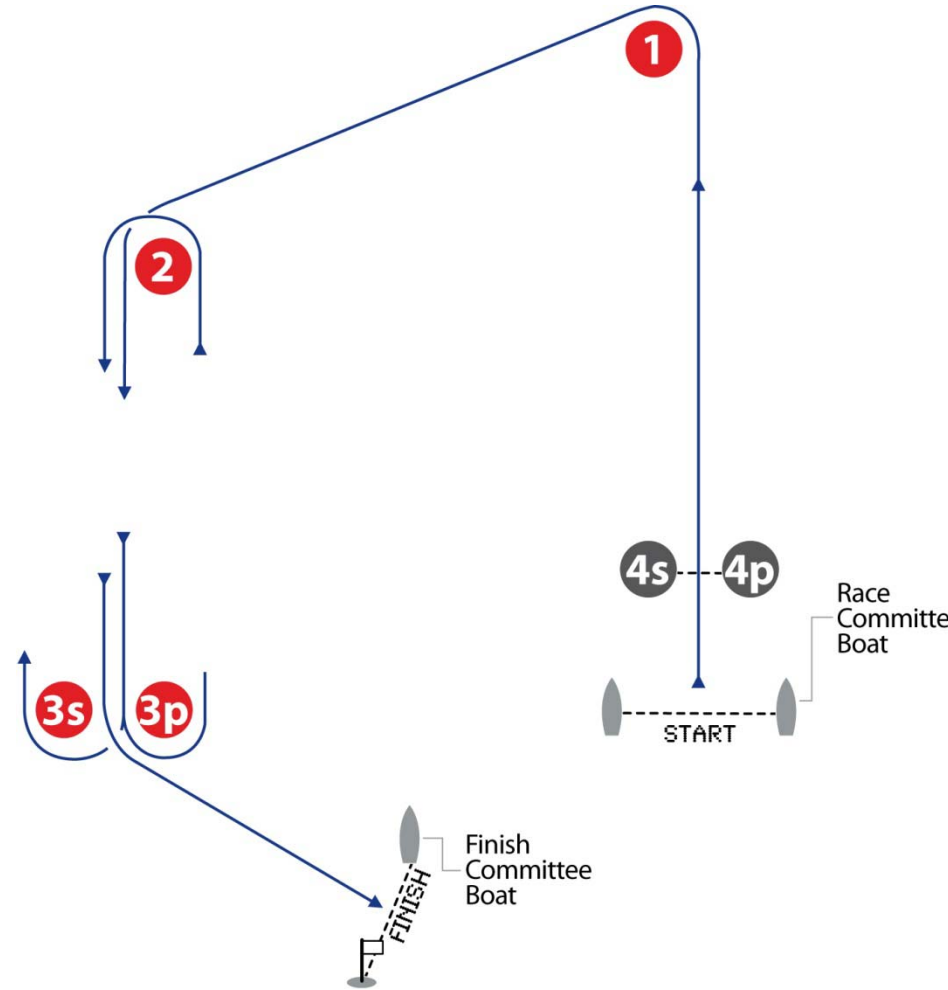




# **OLYMPIC MARK LAYING METHOD USING THE REFERENCE POINT SYSTEM**



# TRAPEZOID OUTER



**Course signal**

**Mark rounding order**

- O1** START – 1 – 2 – 3s/3p – 2 – 3p – FINISH
- O2** START – 1 – 2 – 3s/3p – 2 – 3s/3p – 2 – 3p – FINISH
- O3** START – 1 – 2 – 3s/3p – 2 – 3s/3p – 2 – 3s/3p – 2 – 3p – FINISH



Course Axis	<i>Trapezoid Course 70, 110 interior angles</i>								
	1 - 4	4 - 2	2 - 4	4 - 3	3 - 4	Signal	Pin -	3 -	Finish
3 - 2	2 - 3			1 - 2	2 - 1	- Pin	Signal	Finish	- 3
000	180	321	141	250	070	270	090	110	290
005	185	326	146	255	075	275	095	115	295
010	190	331	151	260	080	280	100	120	300
015	195	336	156	265	085	285	105	125	305
020	200	341	161	270	090	290	110	130	310
025	205	346	166	275	095	295	115	135	315
030	210	351	171	280	100	300	120	140	320
035	215	356	176	285	105	305	125	145	325
040	220	001	181	290	110	310	130	150	330
045	225	006	186	295	115	315	135	155	335
050	230	011	191	300	120	320	140	160	340
055	235	016	196	305	125	325	145	165	345
060	240	021	201	310	130	330	150	170	350
065	245	026	206	315	135	335	155	175	355
070	250	031	211	320	140	340	160	180	000
075	255	036	216	325	145	345	165	185	005
080	260	041	221	330	150	350	170	190	010
085	265	046	226	335	155	355	175	195	015

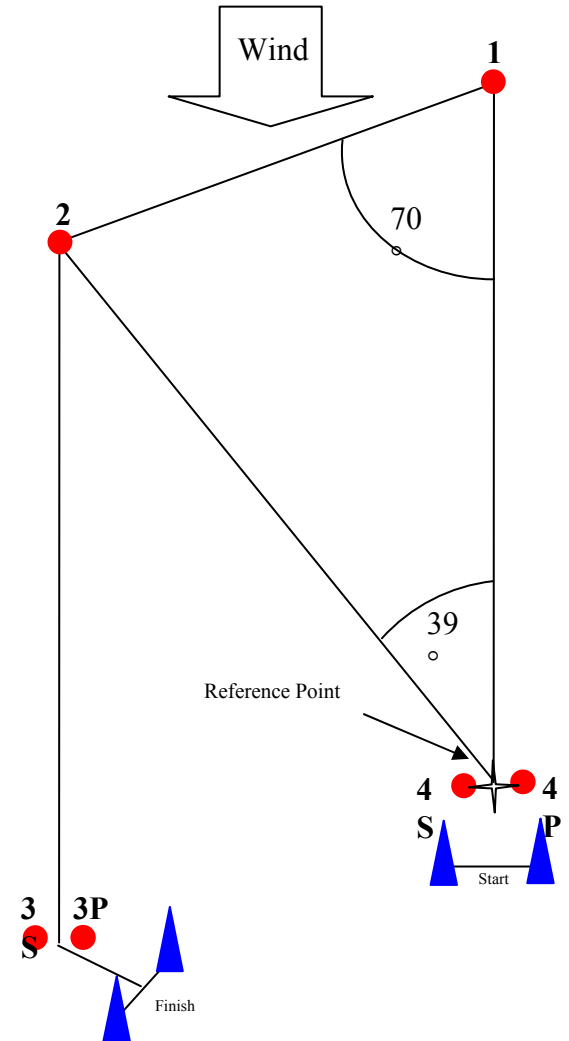




***70° Trapezoid Course Lengths to Marks and Course Lengths – Equal beats 1-2 two thirds of beat length  
Start 0.05 nm downwind of 4S/4P and Finish 0.15 nm from 3S/3P***

Leg lengths		
4 - 1 & 1 - 4		1 - 2 & 2 - 1
2 - 3 & 3 - 2	4 - 2 & 2 - 4	4 - 3 & 3 - 4
0.20	0.20	0.13
0.25	0.25	0.17
0.30	0.30	0.20
0.35	0.35	0.23
0.40	0.40 <td 0.27	
0.45	0.45	0.30
0.50	0.50	0.33

Course Distances		
I1	I2	I3
O1	O2	O3
1.13	1.53	1.93
1.37	1.87	2.37
1.60	2.20	2.80
1.83	2.53	3.23
2.07	2.87	3.67
2.30	3.20	4.10
2.53	3.53	4.53





# RYA MAJOR EVENTS 2009

2009		
Youth Nationals	12-17 April	Largs
ET Championship	9-10 May	Rutland
Mirror Worlds	26-31 July	Pwllheli
Techno Worlds	22-29 August	Weymouth
RS:X Worlds	3-11 September	Weymouth
Sail for Gold Regatta	14-19 September	Weymouth
Zone Championships	26-27 September	Various
ET Team Racing	17-18 October	Oxford



# RYA MAJOR EVENTS 2010

2010		
Youth Nationals	4-9 April	Weymouth
ET Championship	10-11 May	Rutland
Radial Worlds Women	6-14 July	Largs
Radial Worlds	18-25 July	Largs
Laser Worlds	27 August - 5 September	Hayling Island
Laser Masters Worlds	11-19 Sept	Hayling Island
Sail For Gold Regatta	9-14 Aug	Weymouth
Zone Championships	25-26 September	Various
ET Team Racing 1	16-17 October	Oxford
ET Team Racing 2	23-24 October	Oxford





# RYA MAJOR EVENTS 2011 and 2012

2011		
Youth Nationals	17-22 April	Hayling Island
Sail for Gold Regatta	5-11 June	Weymouth
IFDS Worlds	1-8 July	Weymouth
Olympic Test Event	31 July – 13 August	Weymouth LOCOG responsibility

2012		
Youth Nationals	8-13 April	Pwllheli
Sail for Gold Regatta	10-16 June	Weymouth
470 Europeans	July	Largs
Olympic Games	28 July -12 August	Weymouth LOCOG responsibility