

I, 8/4, 0 7, 0	I 0800 7 - 00	I, 8/4, 0 7 - 00



GCE A level

1324/01

PHYSICS

ASSESSMENT UNIT PH4: OSCILLATIONS AND FIELDS

P.M. THURSDAY, 27 January 2011

1½ hours

ADDITIONAL MATERIALS

x8, // 408 0 B4=0B, 7 4, 008 : , : 0009 A460; 040, ., 6 06 00
, 8/ , Data Booklet3

INSTRUCTIONS TO CANDIDATES

- 0 - 6.5 45 90-, 6: 940: 083
- 0 00 0900 8, 7 0W 0800 807 - 00, 8/ ., 8/ 4, 0 807 - 00 48 00
=, . 0=, 000 0: 91 04=: , 203
- b 8=A00all ; 00=008=
- 0 00 0900, 8=A00=48 00 =, . 0=: 004 0/ 48 04=- 995600

INFORMATION FOR CANDIDATES

- 030 00 6807 - 00917, 05=, 0, 4 - 0 19004=: , : 004e03
- 030 807 - 00917, 05=42408 4 - 0.500=, 000 08/ 910, .3 ; 00=008 90: , 00; 00=0083
-) 90, 00 07 4/ 0/ 91 00 80.0=4C190299/ h82643, 8/ 90 00C: 00=080 008 48 0900, 8=A00=3
-) 90, 00 07 4/ 0/ 0 =39A, 6A9054823I 0/ 44=2408 19.900.0A905482 0008 A308 00 148, 6
, 8=A002408 4=48.900.00

s 90h B, 7 400= 0=09800		
13	10	
23	10	
33	4	
43	11	
d3	1e	
i 3	i	
t 3		
e 3	12	
090 6	e 0	

$\frac{1}{2} b - \frac{1}{3} - \frac{1}{6} 915 \times C: \frac{1}{8} (\frac{1}{2})^2, = 4 = 19 \frac{7}{10} / \frac{1}{8} / 0 \frac{1}{2} A, \frac{1}{3} \frac{1}{3} \frac{1}{3} 30 - \frac{1}{3} - \frac{1}{6} 3, =, \frac{1}{9} \frac{1}{6} \frac{1}{7} 0 91$
 $2314 h 10^{i7^3}, 8 / .98 \frac{1}{4} = 13 \frac{1}{10} h 10^{20} 5 \times C: \frac{1}{8} 7 9 \frac{1}{6} . \frac{1}{6} = 0, .3 91 7, = 13 h 10^{2d} 52 \frac{1}{3} 30$
 $: \frac{1}{10} = \frac{1}{10} 91 \frac{1}{3} 0 2, = 4 = 4 0 \frac{1}{3} 0 - \frac{1}{3} - \frac{1}{6} 4 = 300 5 \frac{1}{3}, 3$



$\frac{1}{2} \frac{1}{3} - \frac{1}{3} - \frac{1}{6}$
 $\frac{1}{9} \frac{1}{6} \frac{1}{7} 0 \frac{1}{3} 2314 h 10^{i7^3}$
 $: \frac{1}{10} = \frac{1}{10} \frac{1}{3} 300 5 \frac{1}{3},$
 $\frac{1}{9} 93917 9 \frac{1}{6} . \frac{1}{6} = \frac{1}{3} 13 \frac{1}{10} h 10^{20}$
 $7, = 91, \frac{1}{3} \frac{1}{3} 7 9 \frac{1}{6} . \frac{1}{6} \frac{1}{3} h 10^{2d} 52$

(a) I, 6 6 6 6

(4) $\frac{1}{3} 0 \frac{1}{7} = \frac{1}{3} 00 / 91 \frac{1}{3} 0 \frac{1}{3} \frac{1}{7} 9 \frac{1}{6} . \frac{1}{6} = 4 \frac{1}{3} 0 - \frac{1}{3} - \frac{1}{6}$ *3+

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(44) $\frac{1}{3} 0 \frac{1}{6} \frac{1}{4} \frac{1}{10} 7 9 \frac{1}{6} . \frac{1}{6} \frac{1}{7}, = 91 \frac{1}{3}$ *2+

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(44) $\frac{1}{3} 0 \frac{1}{7} : 0 \frac{1}{3} \frac{1}{3} \frac{1}{3} 91 \frac{1}{3} 0 2, = 4 = 4 0 \frac{1}{3} 0 - \frac{1}{3} - \frac{1}{6} 3$ *3+

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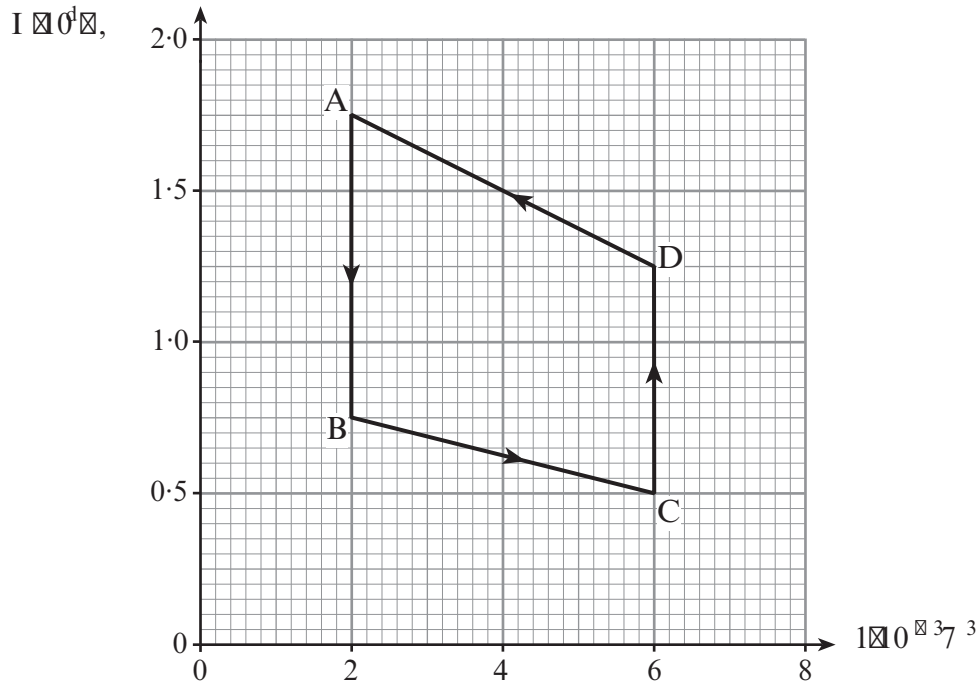
(b) $\frac{1}{3} 30 - \frac{1}{3} - \frac{1}{6} 4 = 4 \frac{1}{4} \frac{1}{6} C 20 7 - 0 \frac{1}{6} A \frac{1}{3} 0 = \frac{1}{3} 1, . 0 91 \frac{1}{3} 0 A, \frac{1}{3} \frac{1}{3} h B: 6 4 8 W 2 \frac{1}{4} 4 8 2 C 9 \frac{1}{3}$
 $\frac{1}{3}, = 9 8 4 2 W 3, \frac{1}{3}, : : 0 8 = \frac{1}{3} \frac{1}{3} 0 = \frac{1}{3} 91 \frac{1}{3} 0 - \frac{1}{3} - \frac{1}{6}, = 4 \frac{1}{4} = 3$ *2+

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.) b 2, = 8 / 0 2 9 0 = 3 0 . C 0 b I I b , = 3 9 A 8 4 3 0 I * 1 2 : 3 - 0 0 A 3



(3) h B 6 4 3 0 C - 4 0 1 6 A 3 C 8 9 A 9 5 4 / 9 8 0 / 4 4 8 2 b I 9 I 3

*1+

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(4) I , 6 6 0 3 0 A 9 5 / 9 8 0 - C 3 0 2 , = / 4 8 2 : 0 . 0 = b 3

*3+

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(d) 3 0 1 4 6 A 9 1 3 0 7 9 / C 8 , 7 4 = 4 = 2 , 6 C A 4 0 8

$\Delta 0$ 2

0 7 0 , 8 4 2 9 1 0 , . 3 7 3

*3+

$\Delta 0$

0

2

(i) I , 6 6 0 3 0 , 1 9 A 9 9 1 3 0 2 , = / 4 8 2 3 0 . C 0 b I I b 3

*3+

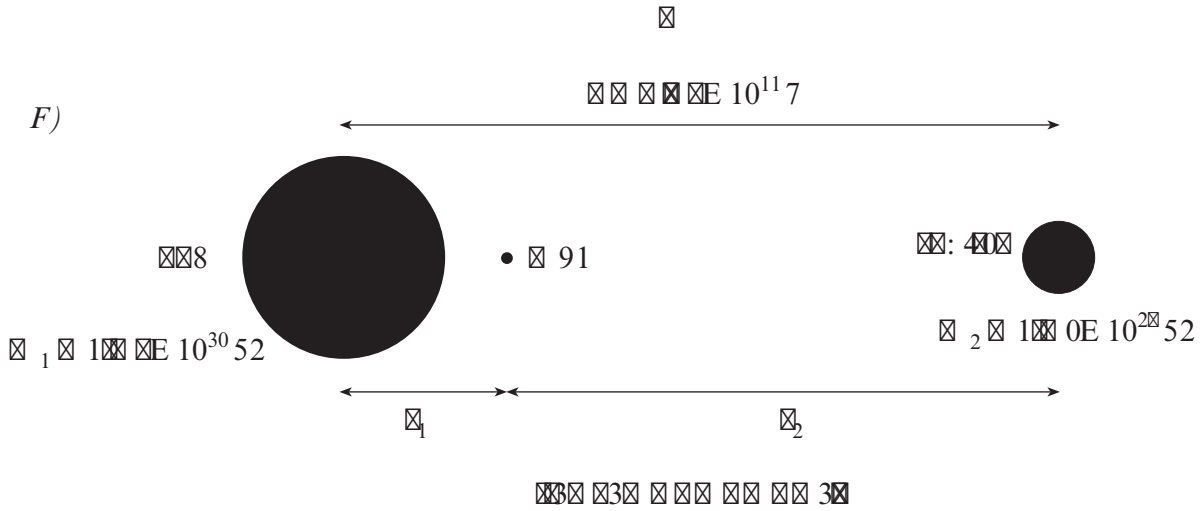
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alWni pWfd



7.40
98C



(3) $6.6 \times 10^{30} / 4 \times 8.0 \times 10^7 \times 0.08 \times 91 \times 10^8 \times 0.08 \times 91 \times 7, = (91) 91$
 $10^8 \times 8 - 4 = 10^7$ *2+

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(4) 39A B, 30: 04/ 91 9 491: 4 4=80, C12 C, 3 *3+

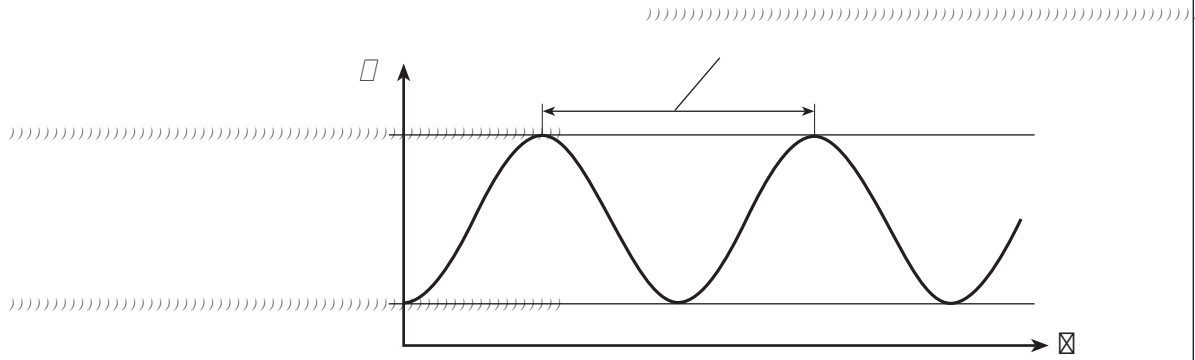
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(X) 39A B, 30 9 4 6= 00/ 91 30 8 4, 8/ 12 7 = 2 *2+

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□

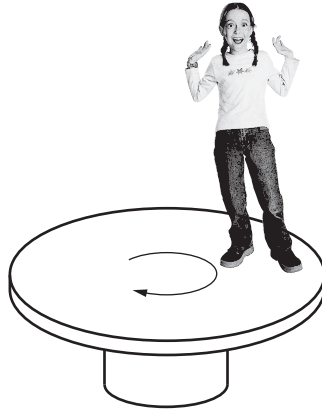
(□) □ 8 , 608 9□□=4 0 □□0 □96 □□C=□7 , 8, C=0=623□ □97 □□0 □□8 , 8/ 148/ =□, □=□8623□4-
 □ 9 : : 6□ =34□□/ / □0 □9 □□0 □□8□=9□- 4 6 = 00/ 91 12□□ 7 =□1 □□ 8 , - 9□ □98 680 91
 A, □06082□ 1□□F7 4=□=0/ □ 7 0, □□□ □□0 □ 9 : : 6□ =34□□□ 30 2□ : 3 =39A=□□0 □, □4 □98
 91 A, □06082□ 91 □□0 1□□F7 680 , =9- =□□□□/ - C□□0 , 608□□6 . 0 □□0 . 9□□. □□, □□0=98
 □□0/ 9□□□/ 680=(9□ A46800/ □ . , 6 □6 □□ 9 : : 6□ =34□□, □□0=19□ □667 , □5 =□ *4+



☒

☒ B. 7 40
98C

M) ☒ .346 ☒ 8/ =98 , : , ☒5 ☒9☒8/ , - 9☒☒ , =4☒9☒☒☒= A4B , .98☒ 8☒ , 82☒6 ☒ = 00/ 91
1☒40☒ / ☒☒



☒30.346 ☒7 , =432☒52 , 8/ ☒30 ☒8/ = , / 4☒ 8.0☒ ☒97 ☒0.08☒091☒0☒98/ , - 9☒☒

☐ ☒39A ☒ , ☒☒0 14 ☒98 , 619☒ 0 0B☒☒/ 98 ☒0 .346 4=2408 - C☒ ☒ ☒ 3☒☒A30☒ ☐ 4=4
80A☒8=, 8/ ☐4=4 7 0☒☒☒ *3+

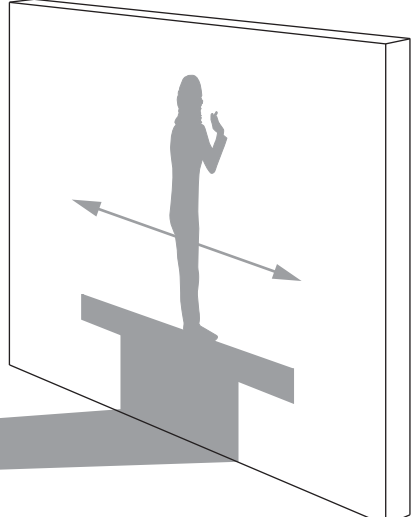
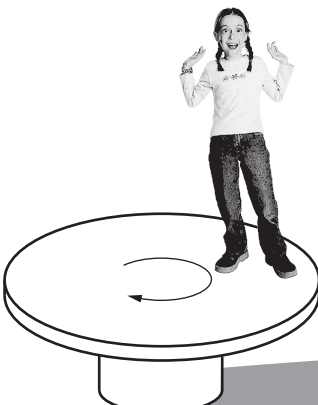
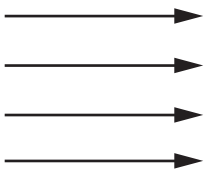
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☐ ☒30 7 , B4 ☒7 : 9=4 0 ☒ , ☒0 91 ☒0 14 ☒98 , 619☒ 0 4=114☒☒☒ B 6 48 - ☒01C A3C☒0
.346 . , 889☒☒ 8/ ☒☒☒0☒☒ , 8 , - 9☒☒1☒07 ☒97 ☒0.08☒091☒0☒98/ , - 9☒☒ *2+

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☒ =☒0☒☒8 ☒☒☒0 24☒☒=3 , / 9A 4. , ☒98 , A, 6☒☒30 ☒3 , / 9A 89A : 0☒9☒7 =47 : 0 3 , ☒7 4
7 9☒98 A4B , 8 , 7 : 6☒/ 091 1☒07 A4B w ☒ 140☒ / ☒☒

623☒ ☒97 ☒0☒☒8



□

□ B 7 40□
98C

β □, 6□6□□□0: 0□4/ 919= 46□48□

*2+

β □, 6□6□□□07, B47 □7 = 00/ 91□0 = 3, / 9A□

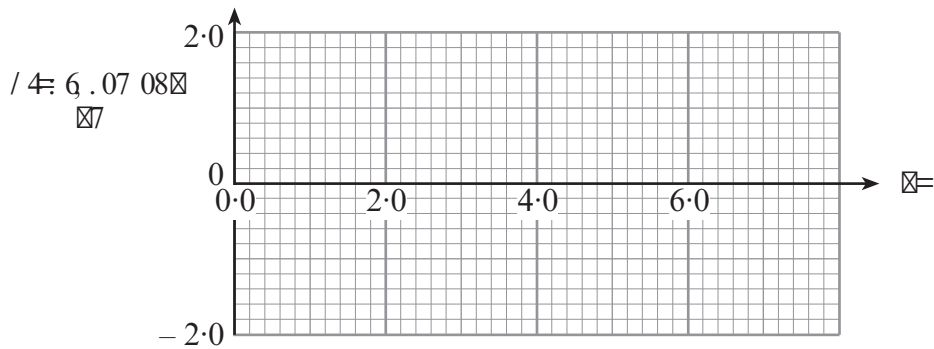
*2+

β □, 6□6□□□07, B47 □7, ..00□□48 91□0 = 3, / 9A, 8/ □□ A30□□□4=9..□□□

*3+

β □□□47 0 □ 0□□□0 = 3, / 9A 4, □□□0.08□□91 4=7 9□48, 8/ 7 9□48 48 □□0: 9=□□□0 - / 40.□48□□50□3, 2□: 3 91□0 = 3, / 9A□/ 4= 6.07 08□, 2, 48 □□47 0 98 □□0 2□4 - 0□A□

*2+

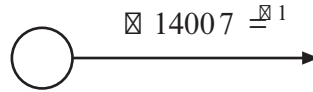
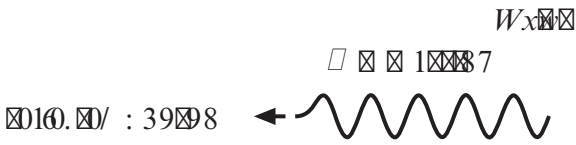
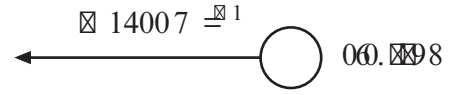
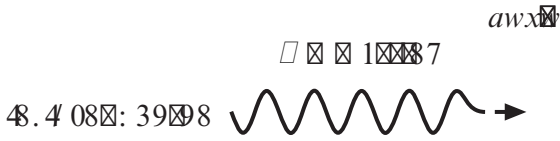


β □, 6□6□□□□=82, 8, ∴: □: □4 □ 0; □, □48□□ □, □□=91 A4348 □□0 14□□ =B =0.98/ = A308 □□0/ 4= 6.07 08□91 □□0 = 3, / 9A 4=□1□07 □

*4+

B.7.40
98C

Q) $\lambda : 3908.9640 = A4B, 800.008, 8/ \lambda - 908/ =, = 39A8 - 00A$



$\beta \quad \lambda, 606 \lambda 0079708 \lambda 79100 : 3908$

*1+

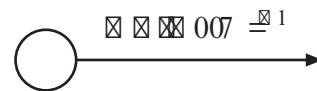
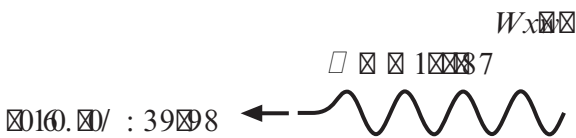
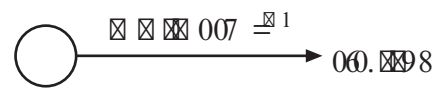
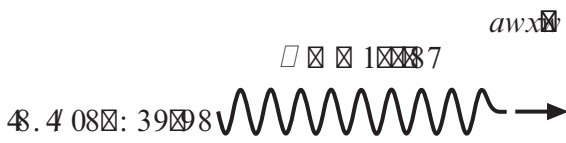
$\beta \quad \lambda 39A \lambda 3, \lambda 0.97 - 480/ 79708 \lambda 79100 = C = 07 - 0190 \lambda 0.964 = 984 =$
 $000 E 10^{20} 527 = \lambda^1 (4080, \lambda CD) \lambda$

*2+

$\beta \quad \lambda B 64 - 401CA30 \lambda 009 \lambda 89 \lambda 79708 \lambda 74.98 = 000/ 4 \lambda 0.964 = 98$

*1+

$\beta \quad \lambda 30 = 70.964 = 984 = A4B = 0 - C, 89 = 000 \lambda 79 \lambda 82 \lambda 00C; \lambda 456 \lambda 00 \lambda 0$

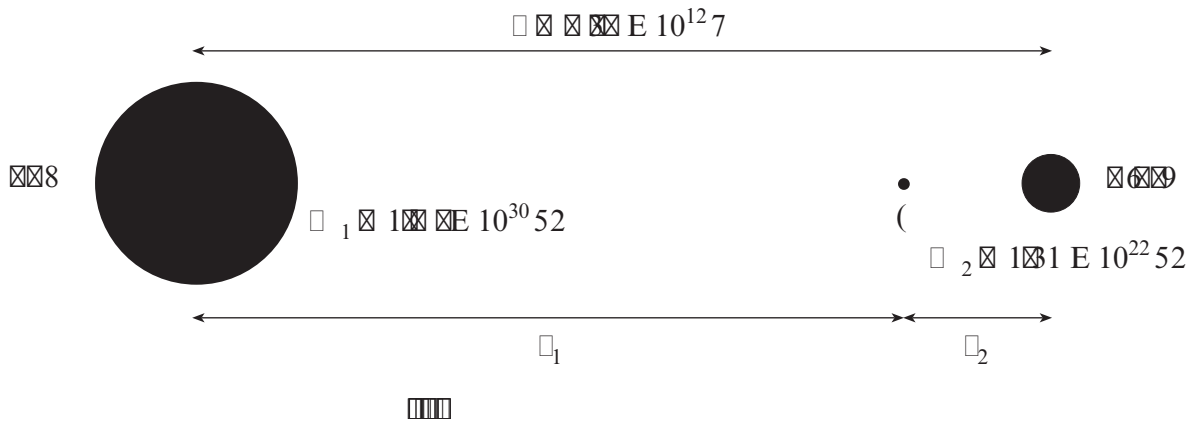


$\lambda 439 \lambda 10080., 606 \lambda 98 = 00B 64 39A.98 = 00, 9891 w \lambda = 46, \therefore 60 = 0 \lambda 4 =$
 $.964 = 98$

*2+

图 7-40
98C

U)



□ 求质心的位置, 6.6 km (30 km = 6.82 km) 4.4 km, 19.091 km, 0.08 - 0.008 km, 8 / 6.6 km *2+

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□ 求: 9.8 km (30 km = 6.82 km) 4.4 km, 19.091 km, 0.08 km
 □ C: 8.2 km 2 km 4.4 km, 19.091 km = / 0.08 km, 8 / 6.6 km, 6.6 km
 求 $\frac{l_2}{l_1}$, 8 / 308.0 km *4+

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□ $\frac{30}{4} = 8.0 - 0.008 \text{ km}$, 8 / 30 km / 0.08, = 19.7 km $1.5 \times 10^{12} \text{ m}$ 4.4 $1.5 \times 10^{12} \text{ m}$
 / 0.08 = 0.64 km, 69.4 km
 □ : C: 8.4 0.91. 98 = 0.08, 19.091 0.08 C, 6.6 km 30.9 km = 98 / 82.8 km, = 4.8
 5.8 0.08 C 91.8 = 0.07 km *3+

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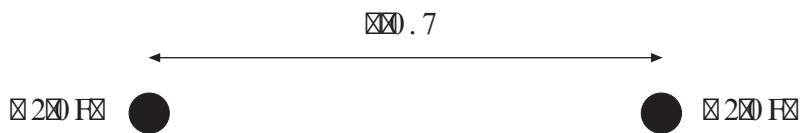


V) 30/4 27 39A=, 8 496 / 802, .3, 20 ()



B 50 3 00. 4 146 680=, 8/ 0; 4 908 6=, .0=19 802, .3, 20 *3+

B A9 : 94 .3, 20=, : 6 .0/ , / 4 8.0 .7 , , , =39A8 4 30/4 27 -09A



(4) , 6 6 30 19 0 - 0A008 30 A9 .3, 20= *2+

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(4) 80 91 30 A9 20 F .3, 20=4=06, =/ 7 0=A340 30 930 4=306
= 48, 00 =0 30 .98.0: 91 : 908 69 : 908 60802C . , 6 6 30
7 , B7 7 540 0802C, 3, 20 A46008, 6C, . ; 4 *3+

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