

-9050-?1 x - 8 1	19?= x x8 . 1=	-9050-?1 x x8 . 1=
		2



GCE AS/A level

1321/01

PHYSICS

PH1: MOTION ENERGY AND CHARGE

A.M. WEDNESDAY, 12 January 2011

1½ hours

9 - 00509 x 74x1C 8 9-?x9 x-01= Dxx B577=10051 -
/-7x7 x=-90 - 2 --x02

x x . 7/6 96 x=. 7/6 . -7x9?x19

) =x1 Dxx=9-8 1 /19?1 9x8 . 1=-90 /-9050-?1 9x8 . 1=9 ?41
xx- /1x-?41 ?xx x2 ?4x- 31

9xB1= xxx10?x9x

) =x1 Dxx=-9xB1=x 9 ?41 xx- /1xx-xA5010 9 ?4x. xx67?

-0 6 x xxx08 31x -xx7		
3x12x x	6x 3x 0x	0x 5 0xx
1.	1	
.		
.	1	
.		
.		
.	1	
-2 x		

x41 x?-79x8 . 1=x28 -=6x-A 57. 71 x=?4x-01=x 0

x41 9x8 . 1=x28 -=6x x35A19 9 . =/61x-? ?41 190 x2 1-/4 xx10?x9 x=x- ? xx10?x9

*xx -x =18 9010 x2 ?41 91/100Dx=3000 937x4 -90 x=01=7x=109?-?x9 9 Dxx=-9xB1=x

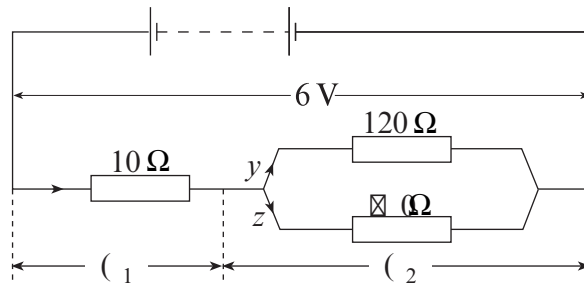
*xx -x =18 9010 x x4xB -7 Bx=693 =10x x 35A19 x=/x=1/? Bx=693 1A19 B419 ?41 29-7
-9xB1=35A19 x9/x=1/?

1321
010001

1. (5) $\frac{1}{R_{eq}} = \frac{1}{10} + \frac{1}{120} + \frac{1}{80}$ 9 -
8

(5) $\frac{1}{R_{eq}} = \frac{1}{10} + \frac{1}{120} + \frac{1}{80}$ $\Rightarrow R_{eq} = 6 \Omega$ 8

$\frac{1}{R_{eq}} = \frac{1}{10} + \frac{1}{120} + \frac{1}{80}$ ()



(5) $\frac{1}{R_{eq}} = \frac{1}{10} + \frac{1}{120} + \frac{1}{80}$ $\Rightarrow R_{eq} = 6 \Omega$ 8

(5) $\frac{1}{R_{eq}} = \frac{1}{10} + \frac{1}{120} + \frac{1}{80}$ $\Rightarrow R_{eq} = 6 \Omega$ 8

- 7 8 7 1

(5) $\frac{1}{R_{eq}} = \frac{1}{10} + \frac{1}{120} + \frac{1}{80}$ $\Rightarrow R_{eq} = 6 \Omega$ 8

(5) $\frac{1}{R_{eq}} = \frac{1}{10} + \frac{1}{120} + \frac{1}{80}$ $\Rightarrow R_{eq} = 6 \Omega$ 8



C 8 91=
89 D

(55) ?41 88?19?5-70 521=19/ 18 (1 -90 (2

☒

(5A) ?41 /8=19?8y-90 z

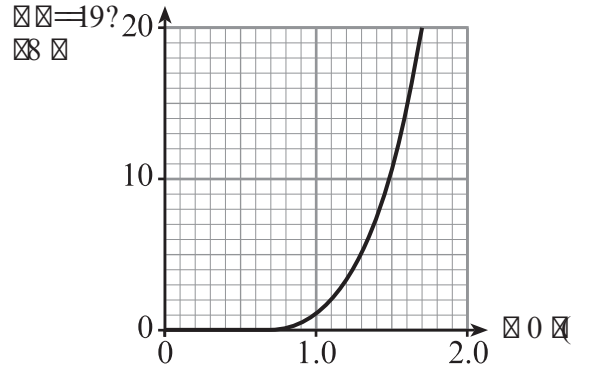
☒

1321
010003

☒

☒ 41 / ☒ = 19? - A 7- 31 / 4- = / ? 1 = 5 5 ☒ 2 - 0 5 01 - 1 ☒ - ☒ 7 D ☒ - 7 3 4? 18 5? 9 3 0 5 01 (☒) ☒
3 = ☒ 4 ☒ 2 / ☒ = 19? - 3- 9 ☒ ☒ ? 19? 5 70 5 21 = 19 / 1 ☒ = - 9 ☒ ☒ 4 ☒ B 9

☒ ☒ (5) ☒ - 7 7 7 ? 1 ? 41 = 1 ☒ 9 / 1 ☒ 2 ? 41 ☒ ☒
B 4 19 ? 41 ☒ 0 ☒ 1 ☒ (☒ ☒

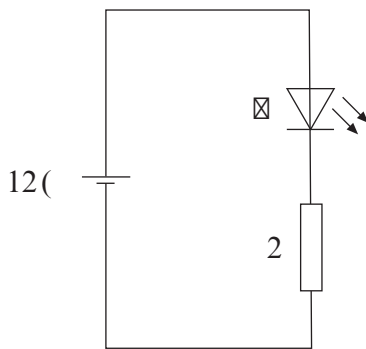


(5) ☒ ☒ 8 19? 9 ? 41 = 1 ☒ 9 / 1 ☒ 2 ? 41 ☒ - ? A 7- 31 ☒ 1 ☒ B 1 0 (☒
☒ - 7 7 7 ? 9 ☒ - = 1 9 ☒ ? = 1 ☒ 5 = 10

☒ ☒ (5) ☒ 7- 9 4 ☒ B ? 41 3 = ☒ 4 ☒ 4 ☒ B ☒ ? 4- ? ? 41 ☒ 0 ☒ 1 ☒ 9 ☒ ? ☒ 1 D ☒ 48 ☒ 7 B ☒ ☒

(5) ☒ - 8 1 ☒ 9 1 ☒ ? 41 = 0 1 A 7 1 ☒ ? 41 = ? 4- 9 - 0 5 01 ☒ B 4 5 4 ☒ 48 ☒ 7 B 0 ☒ 1 ☒ 9 ☒ ? - ☒ 7 D ☒

☒ ☒ (☒ ? 41 ☒ 5 / ☒ 9 9 1 / ? 10 - / = ☒ ☒ - ☒ ☒ ☒ 7 D ☒ 2 18 2 3 = - ? 1 = ? 4- 9 1 ☒ (? 41 9 ? 41 7 = 3 1
/ ☒ = 19? ☒ = 0 ☒ / 10 B 5 7 0 1 ☒ = D ? ☒ = ? 4 ☒ = - ☒ 9 ☒ ☒ ☒ ☒ - 7 D 4- A 1 ☒ = ? 1 / ? 5 A 1 = 1 ☒ ☒ ☒ = ☒
9 ☒ = 5 ☒ B 5 4 ? 4 18 ☒ 7 8 ? ? 41 / ☒ = 19? ☒ 41 / 5 = ? 9 ☒ 4 ☒ B ☒ ? 4 ☒ ☒ ☒ 10 - ☒ - 9 9 0 5 - ? =
☒ = - / - = - 7 = 8 ☒ 41 / - = - ? 1 = D ☒ ☒ ☒ 7 1 12 (- 9 0 ? 41 ☒ 4 - ☒ - 9 ☒ 1 = ? 9 3 / ☒ = 19? ☒ 2
1 ☒ 8 ☒ ☒ 1 ? 1 = 8 9 1 ? 41 A ☒ 1 2 ☒ 2 ? 41 ☒ = ? 1 / ? 5 A 1 = 1 ☒ ☒ ☒ = 9 1 1 0 10 ☒





☒

☒G 8 91=
☒9D

☒☒ (☒ 1=5A☒35A93 - 7. 1770 05 3= 8 ☒?41 =17?☒9☒4☒ . 1?B119 ?41 /☒=19? 0 ?4=☒☒34 -
8 1?- 7B5☒ ☒2 / =☒☒☒/ ?☒9- 7- =1- -☒?41 0=2? A1☒/ 5D☒ ☒☒2 ?41 2=11 17/?☒9☒1- /4 ☒2
/4- =31 ☒☒- 90 ?41 9☒8 . 1=☒☒☒2 2=11 17/?☒9☒1=☒9? A☒☒8 1☒2 ?41 8 1?- ☒ ☒,
(0 ☒☒ -☒ ☒)☒

☒☒ (☒ -7☒7?1 ?41 0=2? A1☒/ 5D☒2 2=11 17/?☒9☒ 9 - /☒☒1=B5☒ ☒2 / =☒☒☒/ ?☒9- 7- =1-
1☒ G10¹8² B419 - /☒=19?☒2 20☒ 2☒B☒☒☒/☒☒1=☒ 1☒ G10²8¹³,☒ ☒,

☒☒ (☒ ☒☒?19?5- 70221=19/1 ☒ =☒☒5=10 - / =☒☒?41 /☒☒1=B5☒ 9 ☒=01=☒=?41 /☒=19? ☒ 2☒B☒
☒41 ☒5E1 ☒2 ?41 /☒=19? 01☒190☒☒9 ?41 B5☒☒☒☒☒☒☒☒☒☒7- 9 9 ?1=8 ☒☒2 2=11
17/?☒9☒4☒B ?4☒ =☒☒- 9/1 - =☒☒☒ ☒,

□

□ □ (□ 41 / □ □ □ 1 = B 5 1 9 □ □ (□ □ 2 7 1 9 3 ? 4 2 □ □ 8 □) 4 1 9 5 ? / - = 5 1 □ - / □ = 1 9 ? □ 2 2 □ □ □ 5 ?
0 □ □ □ - ? 1 □ 1 9 1 = 3 D - ? ? 4 1 = ? 1 □ 2 0 □) □ □ - 7 □ 7 ? 1 5 □ = 1 □ □ ? 5 A ? 1 □ □

□ □ (□ □ / □ 9 0 / □ □ □ 1 = B 5 1 4 - □ ? 4 1 □ 8 1 A □ □ 8 1 - □ ? 4 1 B 5 1 9 □ □ □ . □ ? □ □ 9 3 1 = □
□ □ 8 □ 7 ? 1 ? 4 1 ? . 7 1 . 1 □ B 9 0 5 - ? 9 3 B 4 1 ? 4 1 = ? 4 1 □ □ - 9 ? 5 D 3 5 A 1 9 □ □ □ =
□ = ? 4 □ □ 9 3 1 = B 5 1 □ □ □

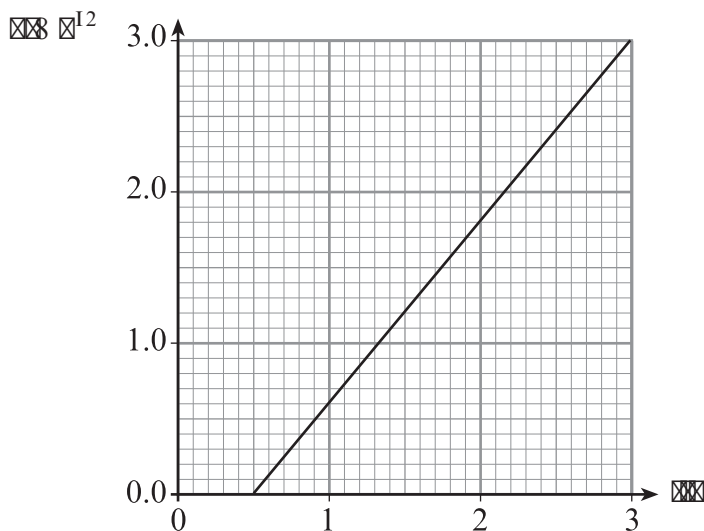
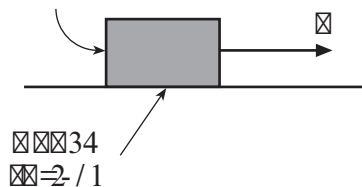
□ □ □ □ □ 1 / ? □ 9 - 7 □ □ -	
□ □ 9 □ 8 . 1 = □ 2 2 = 1 1 7 / ? □ 9 □ □ 9 5 ? A □ □ 8 1	
□ □ □ □ ? 5 A ? D	

☒

☒ C 8 91 =
☒ 9 D

☒ . ☒ 0 D ☒ 2 8 - ☒ 1 ☒ 7 / 10 ☒ 9 - ☒ 3 4 ☒ 2 / 1 - 9 0 - 4 ☒ = 5 ☒ 9 ? - 7 ☒ ≠ 1 ☒ ☒ ☒ ☒ - ☒ ☒ 5 1 0 ☒ ☒ 5 - ☒ ☒ 4 ☒ B 9 ☒ ☒ - ? - ☒ 3 3 5 3 - ☒ ☒ - = ☒ ☒ ☒ ☒ 1 0 ☒ ☒ 0 1 ? 1 = 8 5 1 ? 4 1 - // 1 7 = ? 5 9 ☒ 2 ? 4 1 . ☒ 0 D ☒ = 0 5 2 1 = 1 9 ?
A ☒ 1 ☒ 2 ☒ ☒ 4 1 = ☒ ☒ 7 ☒ - = ☒ 4 ☒ B 9 5 ? 4 1 3 = ☒ 4 ☒

☒ ☒ 0 D ☒ 2 8 - ☒ 1



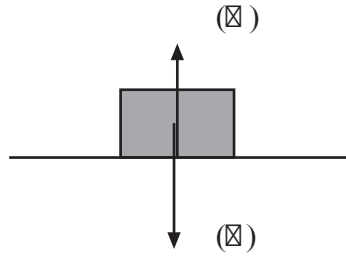
☒ ☒ (5) ☒ ☒ 7 5 B 4 D ? 4 1 - // 1 7 = ? 5 9 ☒ 2 ? 4 1 . ☒ 0 D ☒ 0 B 4 1 9 ? 4 1 - ☒ ☒ 5 1 0 ☒ ≠ 1 ☒ ☒ 7 1 ☒ ? 4 - 9 0 ☒ ☒ ☒

(5) ☒ ☒ 1 I ☒ = 3 = ☒ 4 ☒ 0 1 ? 1 = 8 5 1 ? 4 1 A ☒ 1 ☒ 2 1 ☒ ☒

☒

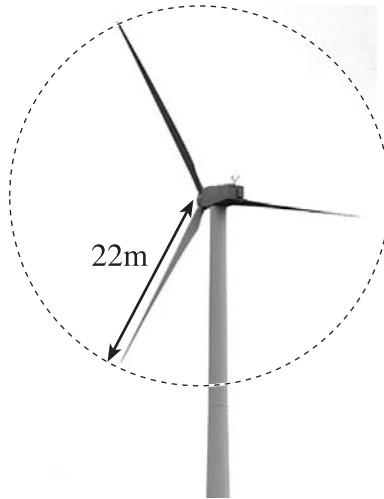
☒☒ (5) - . 17☒≠1☒(☒) - 90 (☒) - ☒☒ - /?93 ☒9 ?41 . ☒0I☒

☒,



(5) %?- ?1 ?41 ☒ 1B?☒9 ?45=0 7-B =- /?☒9 ☒ ☒≠1 (☒) - 90 ?41 . ☒0D☒☒☒9 B454 5- / ?☒☒
☒,

B90 9= 91018910 3191=?1 17/?= 304- . 701B454 B11 9 -9 -=- 2=0
 22 8 41 9= 91 9=9L9 41 B90M 4-? 41 -=- B1? 9? . D?41 . 701 8 -7B- 1-?
 =34? -937 41 B90 051/?9



(5) 41 A 8 1 2 - 5= - 93 4=34 41 . 701 1A=D 1/90 /-9 . 1 /-7 7?10 . D
 /901=93 - /D901=2 - 5= 9/ 5019? 9 41 . 701 %4B 4-? 41 A 8 1 2 - 5=
 - 93 4=34 41 . 701 9 91 1/90 8 - 8=8C8 -?1D21000 8³ 1 B419 41 B90
 110 1 8 1¹

(5) 19/1 /-7 7?1 41 8 - 2 - 5= - 93 4=34 41 . 701 1A=D 1/90 8
 19 8 D 2 - 5= 1 2 638¹³

(55) ☒41 8 1-9 ☒110 ☒2 ?41 - 5=- 21=☒ 4-☒☒-☒☒10 ?4-☒☒34 ?41 . 7 01☒ ☒11 8 ☒^I☒☒ -7☒7?1
 ?41 691?5 191=3D☒☒ . D?41 - 5=☒1=☒1/☒90 -☒☒☒☒-☒☒1☒?4-☒☒34 ?41 . 7 01☒ ☒,

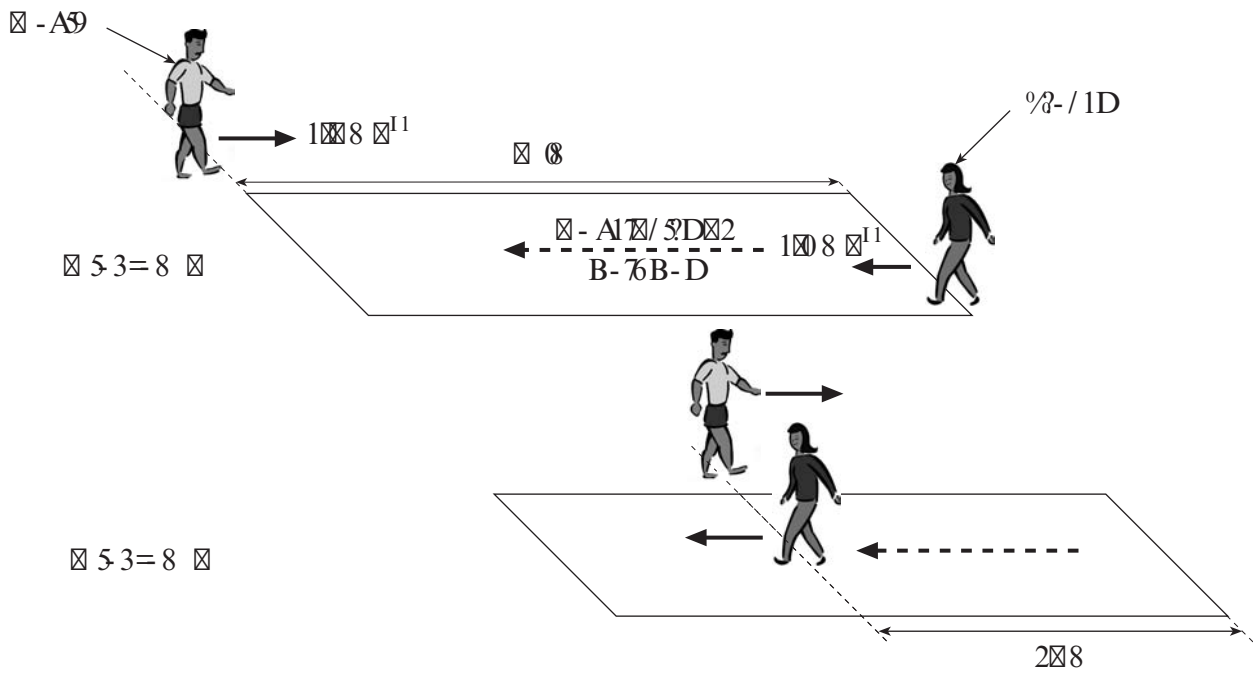
(5A) ☒☒☒8 93 ?4-? ☒☒☒ ☒2 ?4☒ J☒☒☒191=3D☒☒☒10 ☒ 3191=?1 17/?=5☒☒01?1=8 91 ?41
 9☒8 . 1=☒2 ?☒= 91☒?4-? B☒☒70 . 1 911010 ?☒ ☒=☒0☒/1 ?41 ☒- 8 1 ☒☒B1=☒☒?☒☒? -☒- ☒9371
 1000☒) /☒-725=10 ☒☒B1=☒?-?☒9☒ ☒,

8 8 (8 1291 8 8 8 8 8 8)

8,

8 8 (5) 8- / 1DB- 76 B 84 - A1 7 / 5D 2 1 0 8 8 1 1 9 8 - 8 8 A 9 3 B- 7 B- D- ? - 9 - 5 8 8 - ? - 9 0 / 9 9 9 1 8 8 B- 7 6 - ? 4 1 8 1 8 - / 1 8 4 1 B- 7 B- D 8 8 8 2 8 8 A 9 3 B 8 4 - A 1 7 / 5 D 8 8 - 9 0 9 4 1 8 1 0 5 1 / ? 8 9 - 8 8 - / 1 1 8) = 3 1 0 8 B 9 - 9 1 8 = 8 8 8 9 8 = 8 8 - / 1 1 8 8 = 8 8 7 - 9 ? A 1 7 / 5 1 8 8

(5) 8 - A 9 B- 7 6 B 8 4 - A 1 7 / 5 D 2 1 0 8 8 1 1 9 4 1 8 8 8 8 8 8 1 0 5 1 / ? 8 9 8 8 8 - / 1 1 8 8 1 3 1 ? 8 9 4 1 B- 7 6 B- D. 8 ? 9 8 1- 0 B- 7 6 8 9 - 8 = 5 3 ? 7 9 1 . 1 8 5 0 1 4 1 B- 7 6 B- D- 8 8 4 8 B 9 9 0 5 3 = 8 8 8 8 ? 4 1 9 8 - 9 ? 8 8 - / 1 D 8 1 8 8 8 9 8 4 1 B- 7 6 B- 8 8 - A 9 8 8 8 8 8 9 1 0 - ? 4 1 2 = 1 9 0 8 8 0 8 - B- 8 8



8 ? 8 8 1 ? 8 1 J 8 7 - ? 1 = (0 5 3 = 8 8) 8 8 - / 1 D 4 - 8 ? = A 1 7 1 0 2 8 8 2 8 8 4 1 = 8 - ? 8 8 9 ? B 4 1 9 4 1 8 - 8 8 1 8 8 - A 9 B 4 8 / 9 9 9 1 8 8 B- 7 6 9 4 1 8 8 8 8 8 8 1 0 5 1 / ? 8 9 8 4 8 B 8 4 - ? J 8 8 8 8 8 8 1 / 8 9 0 8 8

☒C 8 91=
☒9 D

(55) ☒ 19/1 ☒=☒?41=B ☒1 / - 7☒7 ?1 ?41 A1☒/ ☒I☒☒ ☒☒2 ?41 B- 7B- I☒

☒,

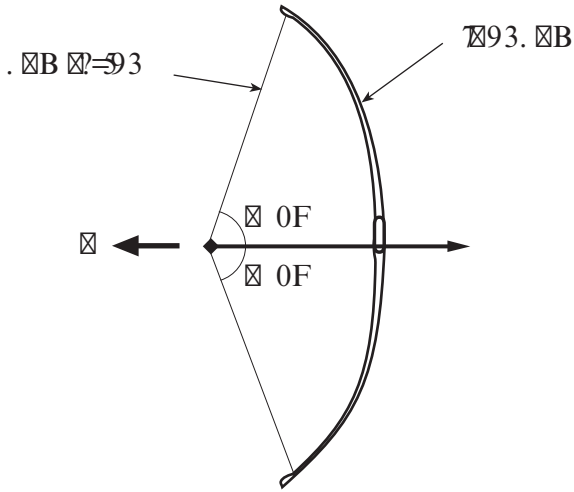
(5A) ☒ - 7☒7 ?1 ?41 A1☒/ ☒DB☒4 B454 ☒ - A9 - 90 %? - / 1D- ☒☒=☒- / 4 1- / 4 ☒?41=☒

☒,

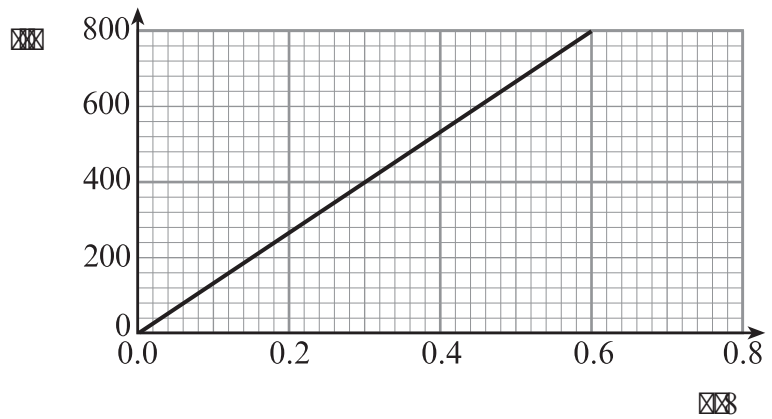
1

() 41 8 10 51 A 7 93. B B - 01 A - ? 9 3 7 D 1 2 2 1 / ? 5 A 1 B 1 - 9 9 8 8 5 3 ? 4 - ? - 4 = 5 9 ? - 7 1 2 0 0 9 1 1 0 1 0 ? 0 = B . - / 6 ? 4 1 . B = 9 3 4 B ? 4 - ? ? 4 1 ? 1 9 9 3 9 ? 4 1 = 9 3 5 - 8 - C 8 - ? 1 7 1 1 0 0

C 8 9 1 = 9 D



(5) 4 1 3 = 4 4 B ? 4 1 A = 5 ? 9 2 B 5 4 2 = ? 4 1 9 3 . B B 4 1 = 5 ? 4 1 0 9 / 1 ? 4 1 / 1 9 ? = 1 2 ? 4 1 = 9 3 5 7 1 0 . - / 6 7 - 7 ? 1 ? 4 1 1 9 1 = D = 1 0 9 ? 4 1 . B B 4 1 9 ? 4 1 ? 1 9 9 9 9 ? 4 1 = 9 3 1 1 0 0

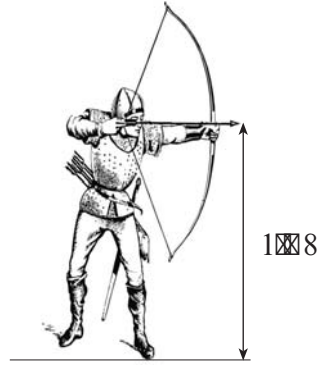


(5) 1 9 / 1 4 4 B ? 4 - ? ? 4 1 1 1 0 2 ? 4 1 = B - 5 7 - A ? ? 4 1 . B 5 - . ? ? 1 0 0 8 1 1 - 6 1 ? 4 1 8 - 2 ? 4 1 = B ? . 1 0 G 1 0 ¹³ 6 3

1

C 8 91=
9 D

() (41 - =B 7- 10 4 =9?- 7D-? ?4 110 2=8 1 8
 - . A1 ?41 3=90 - 4B9 41 - =B /9?9 1 5 8- ?4
 9?5 7 18 . 10 5 12 9 ?41 3=90 - 4 =9?- 70 9/1
 2=8 ?41 9? 2 =7- 1
 / - 7 7 ?1



(5) ?41 ?8 1 ?- 619 =?41 - =B ' =- /4 ?41 3=90 8,

.....

.....

.....

(55) ?41 4 =9?- 70 9/1

,

(55) ?41

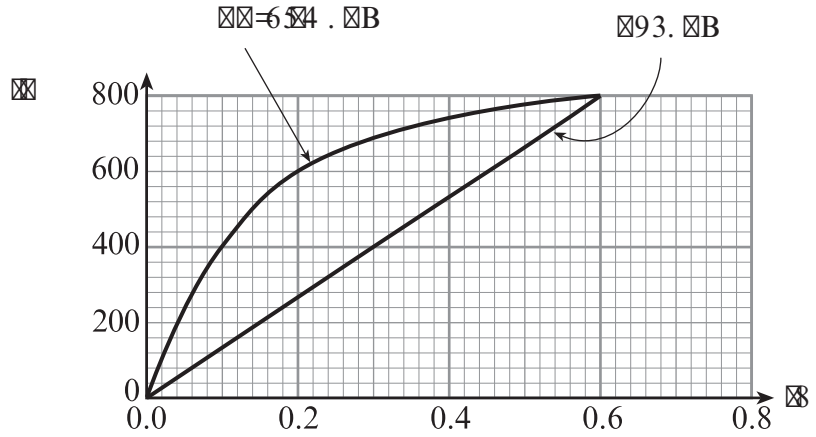
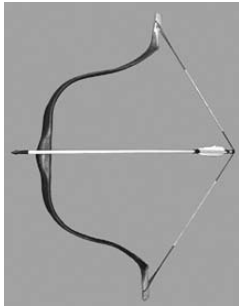
=?41 - =B B419 5 45 ?41 3=90

,

10

891= 9D

41 654 B-. B 2 41 10²⁴ - 90 10²⁴ / 19 51 (5' 10=0) B- - 7 - 21- 8 1
 B1-9- . 7 4? 34? B134? - =B 3=- ? 0 9/ 1 / D2 41 3= 4 9 - 31
 1 4B9 . 1B B454 4- 9/ 10 9 3 - / =A 1 1 = 19? 41 0= B 1 A= 77.
 - / 6 0 9/ 1 = - ? 5 - 7 = 6 54 . B



1 41 3= 4 8 / 8 - = 1 121/ ? 5A19 1 2 41 6 54 . B 9 = 17? 9 41
 93. B* = - 9 B 1 = / 7 = 21 = 1 1- 1 2 1- / 4 . B 41 191= 3 D = 10 - 90
 41 121/ ? 4 4- 8 8 ? 9 2 - 9 - = B

,

10

☒ C 8 91=
☒ 9 D

10

☒ C 8 91=
☒ 9 D