



(12)

李 義 平
前

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5 . ()

4.

(1)

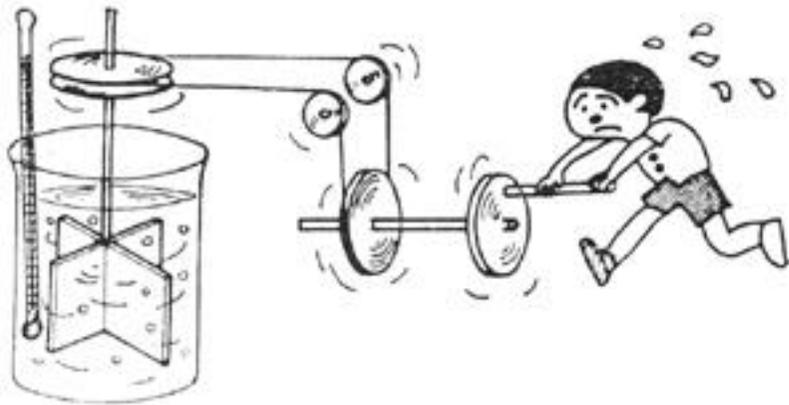
가

1841

H[, J]

t

$$H = I^2 \times R \times t \text{ [J]}$$



< 5-33 >

$P [W] = \frac{I^2 \times t}{R} \times 100\%$
 $P [W]$ 100%가
 $I^2 \times t$ [J/s]
 R [W]

$H = P \times t$ [W/s]

(2) $1 \text{ J} = 0.239 \text{ cal}$ (1J = 0.239cal)

$H = 0.239 \times I^2 \times R \times t$ [cal]

< 5-33 >

(3)

가

11 10

500W 20 1kg 100 100

1kg 100 H[cal] 가

H = 1000 × (100-20) = 80,000[cal]

가 가

< 5-34>

[W] 500W t

1 60

가 가 가

W = 500 × (t × 60) = 30,000t [J]

= 0.239 × 30,000 × t [cal]

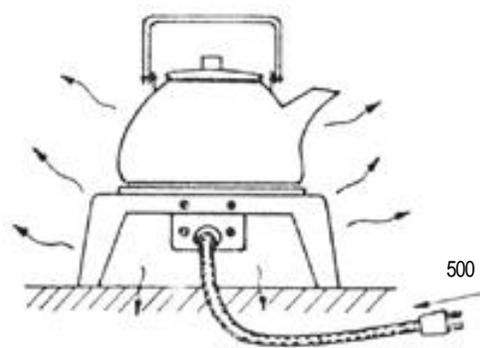
= ————— × 100[%]

80,000 = 0.239 × 30,000 × t

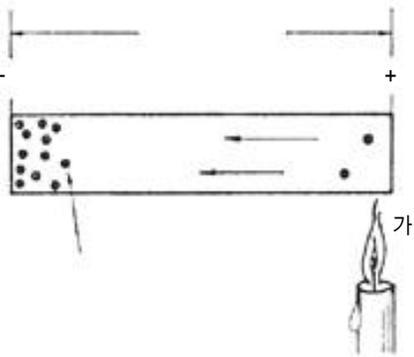
가 60 ~ 80%

$$t = \frac{80,000}{0.239 \times 30,000} \quad 11.158$$

..... 11 10



< 5 - 34 >



< 5-35 >

가

가

< 3-35 >

가

가

가

가

< 5-36 >

1

t_1

t_2

t_1

t_2

가

가

가

가

가

가

가

(1)

가

가

가

가

가

가

가

가

가

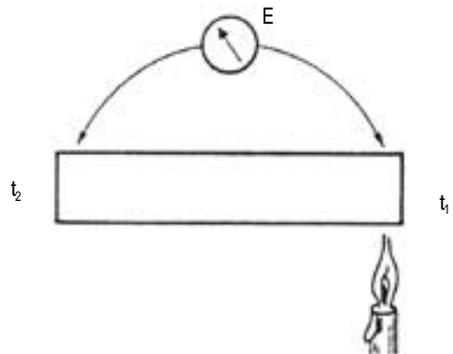
가

가

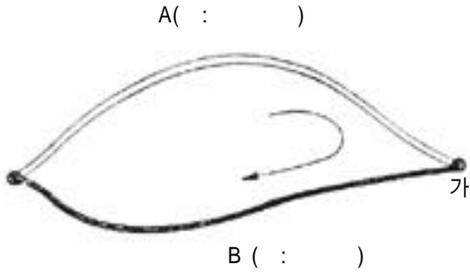
가

가

가



< 5-36 >



< 5-38 >

(4)

V_s [V], T [K] < 5-39 >

$$V_s = \times T$$

가

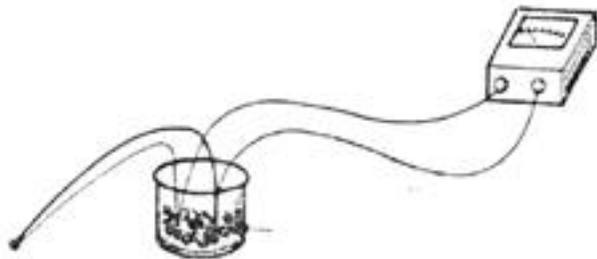
가

가

17

가

1724
[] , 1742
[]



< 5-39 >



< 5-40>

100 5mV

300
1,600

< 5-41>

가

가 가
< 5-40>

가

2

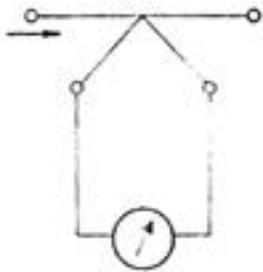
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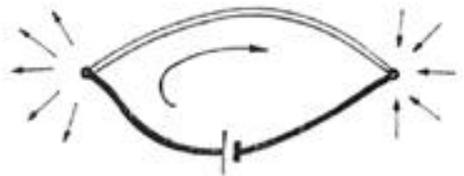
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가

(5)



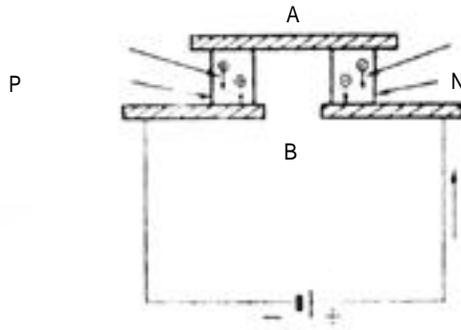
가



< 5-41>

가

< 5-42>



< 5-43>

< 5-42> 2
2

(6)

가

1834

$I^2 \times R$

R

가

2

가

1~2

Q[W],

가

I[A]

Q I

Q= xI

가

< 5-43>

P

N

A

가

가

N

가

가 A

B

가

A

B

P

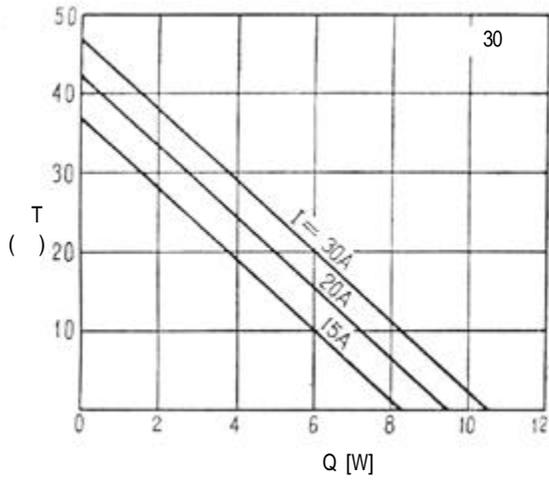
가

가

A

B

A



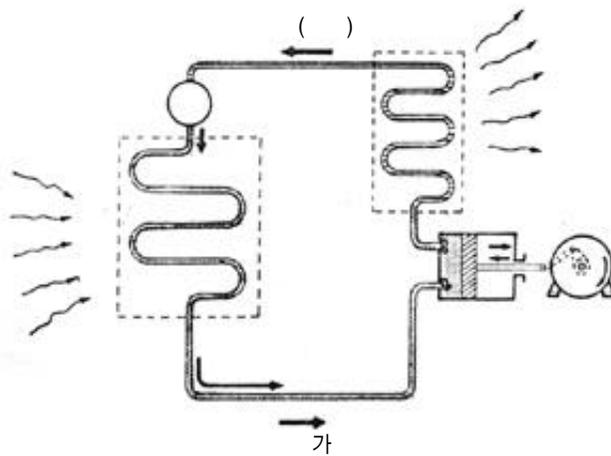
< 5-44 >

B

A

B

가



< 5-45 >

< 5-44 >
가
50W

< 5-45 >
가
가 가
가 가

(7)

가 가
가

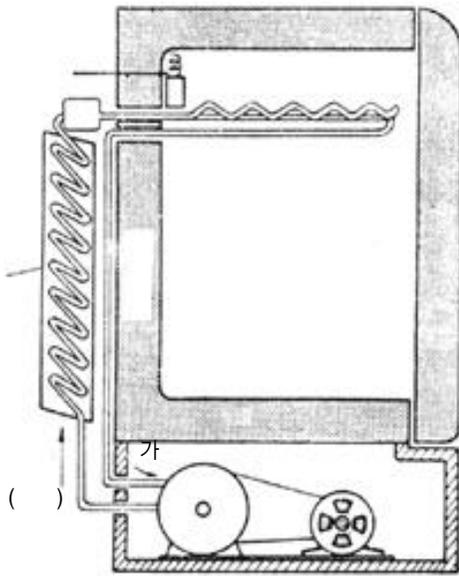
가

가

가

가

가



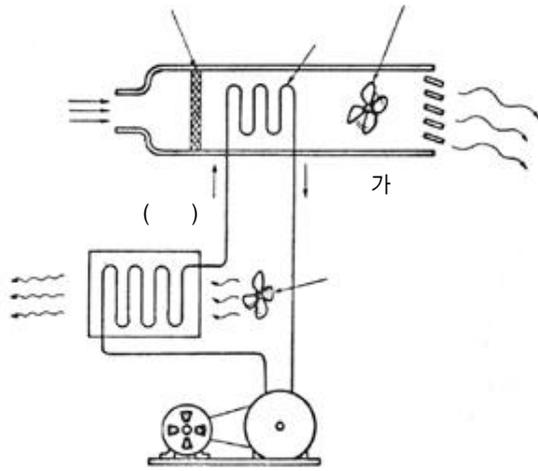
< 5-46 > 가

가 가

< 5-47 >
()

가

< 5-46 >



< 5-47 >

270) 0
 < 5-48 >

가

K

< 5-

(8)

50>

가

가

가

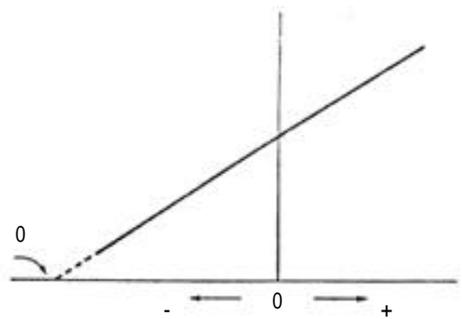
가

10K

< 5-48 >

0

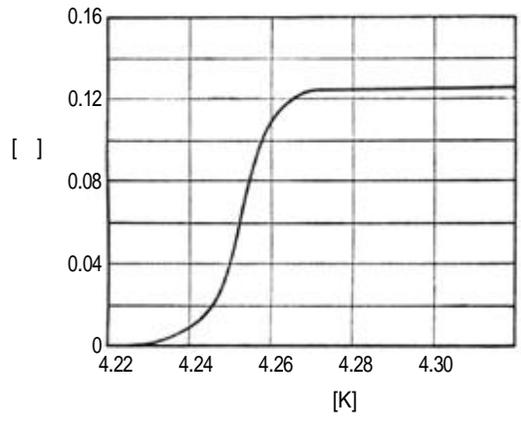
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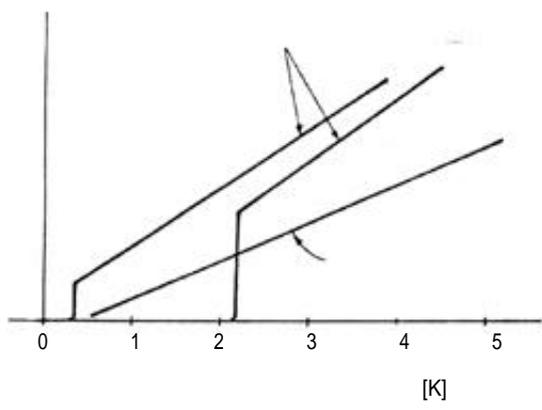
1911

4.2K(

< 5-48 >



< 5-49> (.)



< 5-50>

, 18K

가

0

가

가

