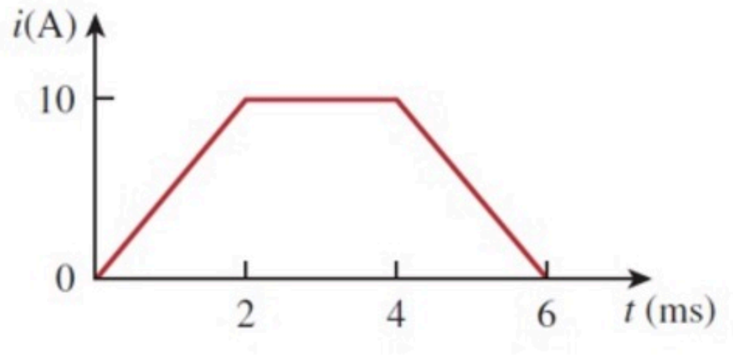
# PP Capacitors Inductors 001

Unlimited Attempts.

Below is the current through a 5 μH inductor.

What is the voltage $v_1$ across the inductor at time $t$ = 3 ms?

What is the voltage $v_2$ across the inductor at time $t$ = 5 ms?




Given Variables:

. : . .

Calculate the following:

v1 (V) :

0 ✓

v2 (V) :

-0.025 ✓

Hint: Check the units.

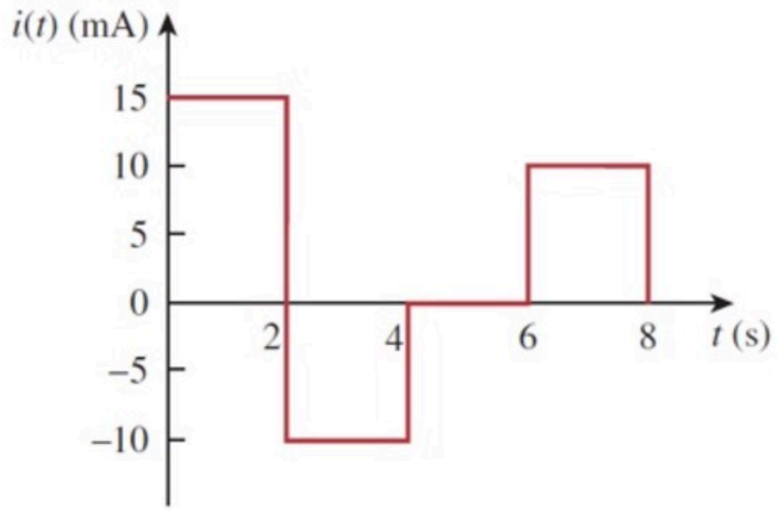
# PP Capacitors Inductors 002

Unlimited Attempts.

Below is the current through a 400 μF capacitor. The voltage across the capacitor at time $t$ = 0 is 5 V.

What is the voltage $v_1$ across the capacitor at time $t$ = 3 s?

What is the voltage $v_2$ across the capacitor at time $t$ = 8 s?




Given Variables:

. : . .

Calculate the following:

v1 (V) :

55 ✓

v2 (V) :

80 ✓

Hint: Check the units.

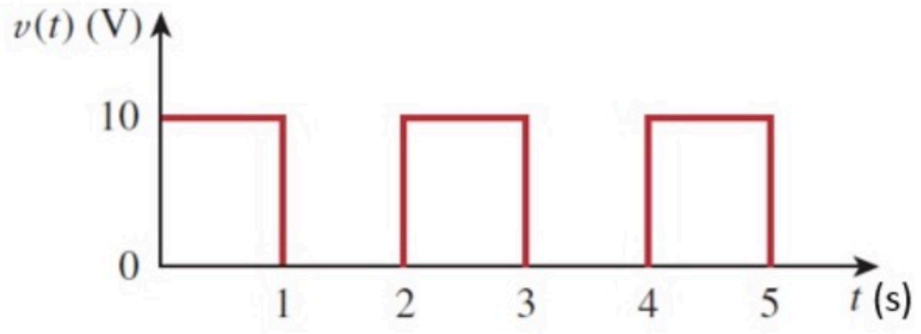
# PP Capacitors Inductors 003

Unlimited Attempts.

Below is the voltage across a 4 H inductor. The current through the inductor at time $t$ = 1 s is -1 A.

What is the current $i_1$ through the inductor at time $t$ = 3 s?

What is the current $i_2$ through the inductor at time $t$ = 4.5 s?




Given Variables:

. : . .

Calculate the following:

i1 (A) :

1.5 ✓

i2 (A) :

2.75 ✓

Hint: Check initial condition.

# PP Capacitors Inductors 004

Unlimited Attempts.

The current through a 400 nF capacitor is $0.05e^{-\frac{t}{2\,\mu s}}$ A. The voltage across the capacitor at time $t = 0$ is 1 V.

What is the voltage $v$ across the capacitor at time $t = \infty$?

Given Variables:

. : . .

Calculate the following:

v (V) :

1.25 ✓

Hint: Check the units

# PP Capacitors Inductors 005

Unlimited Attempts.

The current through a 20 mH inductor is $0.04te^{-\frac{t}{2\,\mu s}}$ A.

What is the voltage $v_1$ across the inductor at time $t = 0$?

Given Variables:

. : . .

Calculate the following:

v1 (mV) :

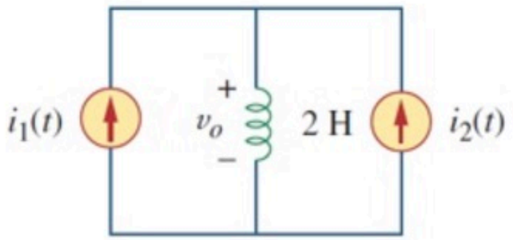
0.8 ✓

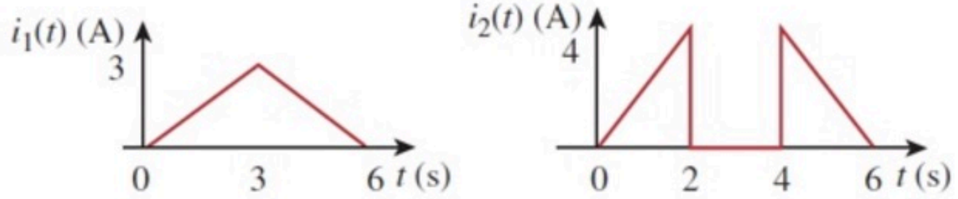
Hint: Check the units

# PP Capacitors Inductors 006

Unlimited Attempts.

What is the voltage $v_o$ at time $t$ = 5 s?




Given Variables:

. : . .

Calculate the following:

vo (V) :

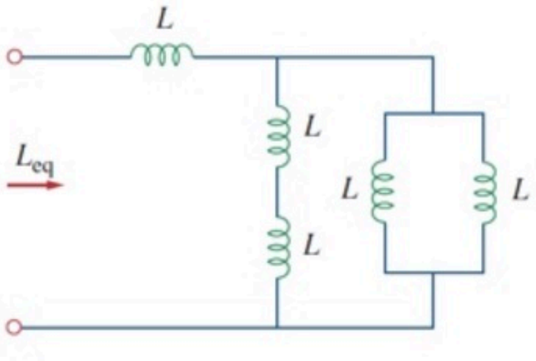
-6 ✓

Hint: Use superposition

# PP Capacitors Inductors 007

Unlimited Attempts.

Find $X = \frac{L_{eq}}{L}$ .




Given Variables:

. : . .

Calculate the following:

X (H/H) :

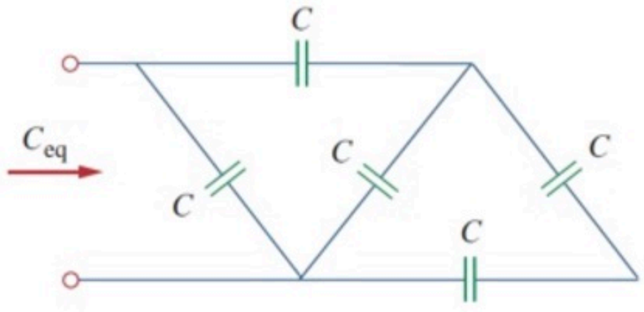
1.4 ✓

Hint: Series and parallel connection of inductors

# PP Capacitors Inductors 008

Unlimited Attempts.

Find $X = \frac{C_{eq}}{C}$.




Given Variables:

. : . .

Calculate the following:

X (F/F) :

1.6 ✓

Hint: Series/parallel equations are 'opposite' of those for resistors.