New ES6 Syntax

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let, const and Block Scoping

Arrow Functions =>

Default Function Parameters

Rest and Spread ...

Object Literal Extensions

for … of Loops

Octal and Binary Literals

Template Literals

Destructuring

let, const and Block Scoping

```
'use strict';
console.log(productId);
var productId = 12;
```

Question

What shows in the console?

Answer

undefined

```
'use strict';
console.log(productId);
let productId = 12;
```

Question

What shows in the console?

Answer

ReferenceError: productId is not defined

```
'use strict';
let productId = 12;
console.log(productId);
```

Question

What shows in the console?

Answer

12

```
'use  strict';
let productId;
console.log(productId);
```

Question

What shows in the console?

Answer

undefined

```
'use strict';
let productId = 12;
{
    let productId = 2000;
}
console.log(productId);
```

Question

What shows in the console?

Answer

12

```
'use strict';
{
    let productId = 2000;
}
console.log(productId);
```

Question

What shows in the console?

Answer

Reference Error: productId is not defined

```
'use strict';
function updateProductId()
    { productId = 12;
}
let productId = null;
updateProductId();
console.log(productId);
```

Question

What shows in the console?

Answer

12

```
'use strict';
let productId = 42;
for (let productId = 0; productId < 10; productId++)
{
}
console.log(productId);
```

Q What shows in the console?

A 42

```
'use strict';
let updateFunctions = [];
for (var i = 0; i < 2; i++) {
    updateFunctions.push(function () { return i; });
}
console.log(updateFunctions[0]());
```

Q

What shows in the console?

A

2

```
'use strict';
let updateFunctions = [];
for (let i = 0; i < 2; i++) {
    updateFunctions.push(function () { return i; });
}
console.log(updateFunctions[0]());
```

Q What shows in the console?

A 0

```
'use strict';
const MARKUP_PCT = 100;
console.log(MARKUP_PCT);
```

Question

What shows in the console?

Answer

100

```
'use strict';
const MARKUP_PCT;
console.log(MARKUP_PCT);
```

Question

What shows in the console?

Answer

SyntaxError: Unexpected token ;

```
'use strict';
const MARKUP_PCT = 100;
MARKUP_PCT = 10;
console.log(MARKUP_PCT);
```

Question

What shows in the console?

Answer

TypeError: Assignment to constant variable.

```
'use strict';
const MARKUP_PCT = 100;
if (MARKUP_PCT > 0) {
    const MARKUP_PCT = 10;
}
console.log(MARKUP_PCT);
```

Question

What shows in the console?

Answer

100

Arrow Functions

=>

```
'use strict';
var getPrice = () => 5.99;
console.log(typeof getPrice);
```

Question

What shows in the console?

Answer

function

```
'use strict';
var getPrice = () => 5.99;
console.log(getPrice());
```

Question

What shows in the console?

Answer

5.99

```
'use strict';
var getPrice = count => count * 4.00;
console.log(getPrice(2));
```

Question

What shows in the console?

Answer

8

```
'use strict';
var getPrice = (count, tax) => count * 4.00 * (1 + tax);
console.log(getPrice(2, .07));
```

Q

What shows in the console?

A

8.56

```
'use strict';
var getPrice = (count, tax) =>
    { var price = count * 4.00;
    price *= (1 + tax);
    return price;
}
console.log(getPrice(2, .07));
```

Question

What shows in the console?

Answer

8.56

```
'use strict';
document.addEventListener('click', function ()
    { console.log(this);
});
```

Q What shows in the console?

A #document

```
'use strict';
document.addEventListener('click', () => console.log(this));
```

Q What shows in the console?

A Window {...}

```
'use strict';
var invoice  =
    {  number: 123,
    process: function () {
        console.log(this);
    }
};
invoice.process();
```

Question

What shows in the console?

Answer

```
Object
  {  number:
  123
}
```

```
'use strict';
var invoice =
    {  number:
    123,
    process: () => console.log(this)
};
invoice.process();
```

Question

What shows in the console?

Answer

Window { ... }

```
'use strict';
var invoice  =
    {  number: 123,
    process: function () {
        return () => console.log(this.number);
    }
};
invoice.process()();
```

Q What shows in the console?

A 123

```
'use strict';
var invoice  =
    {  number: 123,
    process: function () {
        return () => console.log(this.number);
    }
};
var newInvoice =
    { number: 456
};
invoice.process().bind(newInvoice)();
```

Q What shows in the console?

A 123

```
'use strict';
var invoice  =
    {  number: 123,
    process: function () {
        return () => console.log(this.number);
    }
};
var newInvoice =
    { number: 456
};
invoice.process().call(newInvoice);
```

Q What shows in the console?

A 123

```
'use strict';
var getPrice = ()
              => 5.99;
console.log(typeof getPrice);
```

Question

What shows in the console?

Answer

SyntaxError: unexpected token =>

```
'use strict';
var getPrice = () => 5.99;
console.log(getPrice.hasOwnProperty("prototype"));
```

Q What shows in the console?

A false

Default Function Parameters

```
'use strict';
var getProduct = function(productId = 1000)
    { console.log(productId);
};
getProduct();
```

Q What shows in the console?

A 1000

```
'use strict';
var getProduct = function(productId = 1000, type = 'software')
    { console.log(productId + ', ' + type);
};

getProduct(undefined, 'hardware');
```

Q What shows in the console?

A 1000, hardware

```
'use strict';
var getTotal = function(price, tax = price * 0.07 )
    { console.log(price + tax);
};

getTotal(5.00);
```

Q What shows in the console?

A 5.35

```
'use strict';
var baseTax = 0.07;
var getTotal = function(price, tax = price * baseTax )
    { console.log(price + tax);
};

getTotal(5.00);
```

Q What shows in the console?

A 5.35

```
'use strict';
var generateBaseTax = () => 0.07;
var getTotal = function(price, tax = price * generateBaseTax() )
    { console.log(price + tax);
};

getTotal(5.00);
```

Q What shows in the console?

A 5.35

```
'use strict';
var getTotal = function(price, tax = 0.07 )
    { console.log(arguments.length);
};

getTotal(5.00);
```

Q What shows in the console?

A 1

```
'use strict';
var getTotal = function(price = adjustment, adjustment = 1.00)
    { console.log(price + adjustment);
};

getTotal();
```

Q

What shows in the console?

A

SyntaxError: Use before declaration

```
'use strict';
var getTotal = function(price = adjustment, adjustment = 1.00)
    { console.log(price + adjustment);
};

getTotal(5.00);
```

Q What shows in the console?

A 6

```
'use strict';
var getTotal = new Function("price = 20.00", "return price;");
console.log(getTotal());
```

Q

What shows in the console?

A

20

Rest and Spread

```
'use strict';
var showCategories = function (productId, ...categories)
    { console.log(categories instanceof Array);
};
showCategories(123, 'search', 'advertising');
```

Q What shows in the console?

A true

```
'use strict';
var showCategories = function (productId, ...categories)
    { console.log(categories);
};
showCategories(123, 'search', 'advertising');
```

Q What shows in the console?

A ['search', 'advertising']

```
'use strict';
var showCategories = function (productId, ...categories)
    { console.log(categories);
};
showCategories(123);
```

Q What shows in the console?

A []

```
'use strict';
var showCategories = function (productId, ...categories) {
};
console.log(showCategories.length);
```

Q What shows in the console?

A 1

```
'use strict';
var showCategories = function (productId, ...categories)
    { console.log(arguments.length);
};
showCategories(123, 'search', 'advertising');
```

Q What shows in the console?

A 3

```
'use strict';
var showCategories =
    new Function("...categories", "return categories;");

console.log(showCategories('search', 'advertising'));
```

Q What shows in the console?

A ['search', 'advertising']

```
'use strict';
var prices = [12, 20, 18];
var maxPrice = Math.max(...prices);
console.log(maxPrice);
```

Question

What shows in the console?

Answer

20

```
'use strict';
var prices = [12, 20, 18];
var newPriceArray = [...prices];
console.log(newPriceArray);
```

Question

What shows in the console?

Answer

[12, 20, 18]

```
'use strict';
var newPriceArray = Array(...[,,]);
console.log(newPriceArray);
```

Question

What shows in the console?

Answer

[undefined, undefined]

```
'use strict';
var newPriceArray = [...[,,]];
console.log(newPriceArray);
```

Question

What shows in the console?

Answer

[undefined, undefined]

```
'use strict';
var maxCode = Math.max(..."43210");
console.log(maxCode);
```

Question

What shows in the console?

Answer

4

```
'use strict';
var codeArray = ["A", ..."BCD", "E"];
console.log(codeArray);
```

Question

What shows in the console?

Answer

["A","B","C","D","E"]

Object Literal Extensions

```
'use strict';
var price = 5.99, quantity = 30;
var productView = {
    price,
    quantity
};
console.log(productView);
```

Question

What shows in the console?

Answer

{price: 5.99,

quantity: 30}

```
'use strict';
var price = 5.99, quantity = 10;
var productView = {
    price,
    quantity,
    calculateValue() {
        return this.price * this.quantity
    }
};
console.log(productView.calculateValue());
```

Q What shows in the console?

A 59.900000000000006

```
'use strict';
var price = 5.99, quantity = 10;
var productView = {
    price,
    quantity,
    "calculate value"() {
        return this.price * this.quantity
    }
};
console.log(productView["calculate value"]());
```

Q What shows in the console?

A 59.900000000000006

```
'use strict';
var price = 5.99, quantity = 10;
var productView = {
    price: 7.99,
    quantity: 1,
    calculateValue() {
        return this.price * this.quantity
    }
};
console.log(productView.calculateValue());
```

Q What shows in the console?

A 59.900000000000006

```
'use strict';
var field = 'dynamicField'
var price = 5.99;
var productView =
    { [field]: price
};
console.log(productView);
```

Question

What shows in the console?

Answer

{dynamicField: 5.99}

```
'use strict';
var field = 'dynamicField'
var price = 5.99;
var productView =
    {  [field + "-001"]:
    price
};
console.log(productView);
```

Question

What shows in the console?

Answer

{dynamicField-001: 5.99}

```
'use strict';
var method = 'doIt'
var productView = {
    [method + "-001"]()
        {  console.log("in a
        method");
    }
};
productView['doIt-001']();
```

Question

What shows in the console?

Answer

in a method

```
'use strict';
var ident = 'productId';
var productView = {
    get [ident] () { return true; },
    set [ident] (value) { }
};
console.log(productView.productId);
```

Question

What shows in the console?

Answer

true

for … of Loops

```
'use strict';
var categories = ['hardware', 'software', 'vaporware'];
for (var item of categories) {
    console.log(item);
}
```

Q

What shows in the console?

A

hardware
software
vaporware

```
'use strict';
var categories = [,,];
for (var item of categories)
    { console.log(item);
}
```

Question

What shows in the console?

Answer

undefined

undefined

```
'use strict';
var codes = "ABCDF";
var count = 0;
for (var code of codes)
    { count++;
}
console.log(count);
```

Question

What shows in the console?

Answer

5

Octal and Binary Literals

```
'use strict';
var value = 0o10;
console.log(value);
```

Question

What shows in the console?

Answer

8

```
'use strict';
var value = 0O10;
console.log(value);
```

Question

What shows in the console?

Answer

8

```
'use strict';
var value = 0b10;
console.log(value);
```

Question

What shows in the console?

Answer

2

```
'use strict';
var value = 0B10;
console.log(value);
```

Question

What shows in the console?

Answer

2

Template Literals

```
'use strict';
let invoiceNum = '1350';
console.log(`Invoice Number: ${invoiceNum}`);
```

Q

What shows in the console?

A

Invoice Number: 1350

```
'use strict';
let invoiceNum = '1350';
console.log(`Invoice Number: ${invoiceNum}`);
```

Q What shows in the console?

A Invoice Number: 1350

```
'use strict';
let invoiceNum = '1350';
console.log(`Invoice Number: \${invoiceNum}`);
```

Q

What shows in the console?

A

Invoice Number: ${invoiceNum}

```
'use strict';
let message = `A
B
C`;
console.log(message);
```

Question

What shows in the console?

Answer

A

B

C

```
'use strict';
let invoiceNum = '1350';
console.log(`Invoice Number: ${"INV-" + invoiceNum}`);
```

Q

What shows in the console?

A

Invoice Number:
INV-1350

```
'use strict';

function showMessage(message)
    { let invoiceNum = '99';
    console.log(message);
}

let invoiceNum = '1350';
showMessage(`Invoice Number: ${invoiceNum}`);
```

Q What shows in the console?

A Invoice Number: 1350

```
'use strict';

function processInvoice(segments)
    { console.log(segments);
}

processInvoice `template`;
```

Q What shows in the console?

A ["template"]

```
'use strict';

function processInvoice(segments, ...values)
    { console.log(segments);
    console.log(values);
}

let invoiceNum = '1350';
let amount = '2000';
processInvoice `Invoice: ${invoiceNum} for ${amount}`;
```

Q What shows in the console?

A
```
["Invoice: ", " for ", ""]
[1350, 2000]
```

Destructuring

```
'use strict';
let salary = ['32000', '50000', '75000'];
let [ low, average, high ] = salary;
console.log(average);
```

Q What shows in the console?

A 50000

```
'use strict';
let salary = ['32000', '50000'];
let [ low, average, high ] = salary;
console.log(high);
```

Q What shows in the console?

A undefined

```
'use strict';
let salary = ['32000', '50000', '75000'];
let [ low, , high ] = salary;
console.log(high);
```

Q What shows in the console?

A 75000

```
'use strict';
let salary = ['32000', '50000', '75000'];
let [ low, ...remaining ] = salary;
console.log(remaining);
```

Q What shows in the console?

A ["50000", "75000"]

```
'use strict';
let salary = ['32000', '50000'];
let [ low, average, high = '88000' ] = salary;
console.log(high);
```

Q What shows in the console?

A 88000

```
'use strict';
let salary = ['32000', '50000', ['88000', '99000'] ];
let [low, average, [actualLow, actualHigh]] = salary;
console.log(actualLow);
```

Q What shows in the console?

A 88000

```
'use strict';
let salary = ['32000', '50000'];
let low, average, high;
[ low, average, high = '88000' ] = salary;
console.log(high);
```

Q What shows in the console?

A 88000

```
'use strict';

function reviewSalary([low, average], high = '88000')
    { console.log(average);
}

reviewSalary(['32000', '50000']);
```

Q What shows in the console?

A 50000

```
'use strict';
let salary = {
    low: '32000',
    average: '50000',
    high: '75000'
};
let { low, average, high } = salary;
console.log(high);
```

Question

What shows in the console?

Answer

75000

```
'use strict';
let salary = {
    low: '32000',
    average: '50000',
    high: '75000'
};
let { low: newLow, average: newAverage, high: newHigh } = salary;
console.log(newHigh);
```

Q What shows in the console?

A 75000

```
'use strict';
let salary = {
    low: '32000',
    average: '50000',
    high: '75000'
};
let newLow, newAverage, newHigh;
{ low: newLow, average: newAverage, high: newHigh } = salary;
console.log(newHigh);
```

Q

What shows in the console?

A

Syntax Error

```
'use strict';
let salary = {
    low: '32000',
    average: '50000',
    high: '75000'
};
let newLow, newAverage, newHigh;
({ low: newLow, average: newAverage, high: newHigh } = salary);
console.log(newHigh);
```

Q What shows in the console?

A 75000

```
'use strict';
let [maxCode, minCode] = 'AZ';
console.log(`min: ${minCode}  max: ${maxCode}`);
```

Q

What shows in the console?

A

min: Z max: A

Advanced Destructuring

```
'use strict';
let [high, low] = [,];
console.log(`high: ${high}  low: ${low}`);
```

Q

What shows in the console?

A

high: undefined
low: undefined

```
'use strict';
let [high, low] = undefined;
console.log(`high: ${high}  low: ${low}`);
```

Q

What shows in the console?

A

Runtime Error: Unable to get property 'Symbol.iterator' of undefined or null reference

```
'use strict';
let [high, low] = null;
console.log(`high: ${high}  low: ${low}`);
```

Q

What shows in the console?

A

Runtime Error: Unable to get property 'Symbol.iterator' of undefined or null reference

```
'use strict';
try {
    let [ high, low, ] = undefined;
}
catch (e)
    {
    console.log(e.name);
}
```

Q What shows in the console?

A TypeError

```
'use strict';
let [ high, low, ] = [500, 200];
console.log(`high: ${high}  low: ${low}`);
```

Q

What shows in the console?

A

high: 500 low: 200

```
'use strict';
 for (let [a, b] of [[5, 10]]) {
     console.log(`${a} ${b}`);
}
```

Q

What shows in the console?

A

5 10

```
'use  strict';
let count = 0;
for (let [a, b] of [[5, 10]]) {
    console.log(`${a} ${b}`);
    count++;
}
console.log(count);
```

Q

What shows in the console?

A

5 10
1

```
'use strict';
try {
    throw [123, 'message'];
}
catch ([invoiceNum, errorMessage])
    {  console.log(`${invoiceNum}
    ${errorMessage}`);
}
```

Q What shows in the console?

A 123 message

```
'use strict';
function getResult()
    { let high, low;
    return { high, low } = { high: 500, low: 200 };
}

console.log(getResult());
```

Q What shows in the console?

A {high: 500, low: 200}

```
'use strict';
let nums = {
    high: 1000,
    low: 20,
    average: 400
};
let high, low, average;

({ high, low } = { average } = nums);

console.log(`${high} ${low} ${average}`);
```

Q What shows in the console?

A 1000 20 400

Summary

let, const and Block Scoping

```
'use strict';
let productId = 12;
console.log(productId);
```

Summary

Arrow Functions

```
'use strict';
var getPrice = count => count * 4.00;
console.log(getPrice(2));
```

Summary

Default Function Parameters

```
'use strict';
var getTotal = function(price, tax = price * 0.07 ) {
    console.log(price + tax);
};

getTotal(5.00);
```

Summary

Rest and Spread Operators

```
'use strict';
var showCategories =
    function (productId, ...categories) {
    };
console.log(showCategories.length);
```

```
'use strict';
var prices = [12, 20, 18];
var maxPrice = Math.max(...prices);
console.log(maxPrice);
```

Summary

Object Literal Extensions

```
'use strict';
var method = 'doIt'
var productView = {
    [method + "-001"]() {
        console.log("in a method");
    }
};
productView['doIt-001']();
```

Summary

for … of Loops

```
'use strict';
var codes = "ABCDF";
var count = 0;
for (var code of codes) {
    count++;
}
console.log(count);
```

Summary

Octal and Binary Literals

```
'use strict';
var value = 0o10;
console.log(value);
```

```
'use strict';
var value = 0b10;
console.log(value);
```

Summary

Template Literals

```
'use strict';
let invoiceNum = '1350';
console.log(`Invoice Number: ${invoiceNum}`);
```

Summary

Destructuring

```
'use strict';
let salary = ['32000', '50000', '75000'];
let [ low, average, high ] = salary;
console.log(average);
```