

Semantic Analysis

הים התיכון קיבל 100 בבגרות באנגלית

חימום

שגיאות?	קוד
	<pre>void main(void) { int i=0; int j=0; printf("",i,j); }</pre>

חימום

שגיאות?	קוד
<pre>Build: 1 succeeded</pre>	<pre>void main(void) { int i=0; int j=0; printf("",i,j); }</pre>

חימום

שגיאות?	קוד
<pre>Build: 1 succeeded</pre>	<pre>void main(void) { int i=0; int j=0; printf("",i,j); }</pre>
	<pre>class A { public: int x; } void main(void) { A *a; a->y; }</pre>

חימום

שגיאות?	קוד
<pre>Build: 1 succeeded</pre>	<pre>void main(void) { int i=0; int j=0; printf("",i,j); }</pre>
<pre>error C2039: 'y' : is not a member of 'A'</pre>	<pre>class A { public: int x; } void main(void) { A *a; a->y; }</pre>

חימום

שגיאות?	קוד
	<pre>class A { public: int x; }; void main(void) { A *a; a.x; }</pre>

חימום

שגיאות?	קוד
<pre>error C2228: left of '.x' must have class/struct/union</pre>	<pre>class A { public: int x; }; void main(void) { A *a; a.x; }</pre>

חימום

שגיאות?	קוד
	<pre>class A { private: int x; }; void main(void) { A *a; a->x; }</pre>

חימום

שגיאות?	קוד
<pre>error C2248: 'A::x' : cannot access private member declared in class 'A'</pre>	<pre>class A { private: int x; }; void main(void) { A *a; a->x; }</pre>

חימום

שגיאות?	קוד
	<pre>void main(void) { int i=9/0; }</pre>

חימום

שגיאות?	קוד
<pre>error C2124: divide or mod by zero</pre>	<pre>void main(void) { int i=9/0; }</pre>

חימום

שגיאות?	קוד
<pre>error C2124: divide or mod by zero</pre>	<pre>void main(void) { int i=9/0; }</pre>
	<pre>void main(void) { int j=0; int i=9/j; }</pre>

חימום

שגיאות?	קוד
<pre>error C2124: divide or mod by zero</pre>	<pre>void main(void) { int i=9/0; }</pre>
<pre>Build: 1 succeeded</pre>	<pre>void main(void) { int j=0; int i=9/j; }</pre>

חימום

שגיאות?	קוד
	<pre>void main(void) { FILE *f1; while (f1 = 5); }</pre>

חימום

שגיאות?	קוד
<pre>error C2440: '=' : cannot convert from 'int' to 'FILE *'</pre>	<pre>void main(void) { FILE *f1; while (f1 = 5); }</pre>

חימום

שגיאות?

קוד

```
error C2440: '=' :  
cannot convert from 'int' to 'FILE *'
```

```
void main(void)  
{  
    FILE *f1;  
    while (f1 = 5);  
}
```

```
void main(void)  
{  
    FILE *f1;  
    while (f1 = (FILE *) 5);  
}
```


חימום

שגיאות?

קוד

```
error C2440: '=' :  
cannot convert from 'int' to 'FILE *'
```

```
void main(void)  
{  
    FILE *f1;  
    while (f1 = 5);  
}
```

```
Build: 1 succeeded
```

```
void main(void)  
{  
    FILE *f1;  
    while (f1 = (FILE *) 5);  
}
```

חימום

שגיאות?	קוד
	<pre>void main(void) { 13 < "13"; }</pre>

חימום

שגיאות?	קוד
<pre>error C2446: '<' : no conversion from 'const char *' to 'int' warning C4552: '<' : operator has no effect; expected operator with side-effect</pre>	<pre>void main(void) { 13 < "13"; }</pre>

חימום

שגיאות?	קוד
<pre>error C2446: '<' : no conversion from 'const char *' to 'int' warning C4552: '<' : operator has no effect; expected operator with side-effect</pre>	<pre>void main(void) { 13 < "13"; }</pre>
	<pre>void main(void) { "12" < "13"; }</pre>

חימום

שגיאות?	קוד
<pre>error C2446: '<' : no conversion from 'const char *' to 'int' warning C4552: '<' : operator has no effect; expected operator with side-effect</pre>	<pre>void main(void) { 13 < "13"; }</pre>
<pre>Build: 1 succeeded</pre>	<pre>void main(void) { "12" < "13"; }</pre>

חימום

שגיאות?	קוד
	<pre>void main(void) { (void) printf("Moish\n"); }</pre>

חימום

שגיאות?	קוד
<div>Build: 1 succeeded</div>	<div><pre>void main(void) { (void) printf("Moish\n"); }</pre></div>

חימום

שגיאות?

Build: 1 succeeded

קוד

```
void main(void)
{
    (void) printf("Moish\n");
}
```

```
typedef struct
{
    int x;
    int y;
    struct PointType NextPoint;
}
PointType;
```


חימום

שגיאות?	קוד
<div>Build: 1 succeeded</div>	<div><pre>void main(void) { (void) printf("Moish\n"); }</pre></div>
<div>error C2079: '<unnamed-tag>::NextPoint' uses undefined struct 'PointType'</div>	<div><pre>typedef struct { int x; int y; struct PointType NextPoint; } PointType;</pre></div>

חימום

שגיאות?	קוד
<div>Build: 1 succeeded</div>	<div><pre>void main(void) { (void) printf("Moish\n"); }</pre></div>
<div>error C2079: '<unnamed-tag>::NextPoint' uses undefined struct 'PointType'</div>	<div><pre>typedef struct { int x; int y; struct PointType NextPoint; } PointType;</pre></div>
	<div><pre>typedef struct { int x; int y; struct PointType *NextPoint; } PointType;</pre></div>

חימום

שגיאות?	קוד
Build: 1 succeeded	<pre>void main(void) { (void) printf("Moish\n"); }</pre>
error C2079: '<unnamed-tag>::NextPoint' uses undefined struct 'PointType'	<pre>typedef struct { int x; int y; struct PointType NextPoint; } PointType;</pre>
Build: 1 succeeded	<pre>typedef struct { int x; int y; struct PointType *NextPoint; } PointType;</pre>

חימום

שגיאות?	קוד
	<pre>int f(void) { return "340"; }</pre>

חימום

שגיאות?	קוד
<pre>error C2440: 'return' : cannot convert from 'const char [4]' to 'int'</pre>	<pre>int f(void) { return "340"; }</pre>

חימום

שגיאות?	קוד
<pre>error C2440: 'return' : cannot convert from 'const char [4]' to 'int'</pre>	<pre>int f(void) { return "340"; }</pre>
	<pre>int g() { return f(); } int f(void) { return 0; }</pre>

חימום

שגיאות?	קוד
<pre>error C2440: 'return' : cannot convert from 'const char [4]' to 'int'</pre>	<pre>int f(void) { return "340"; }</pre>
<pre>error C3861: 'f': identifier not found</pre>	<pre>int g() { return f(); } int f(void) { return 0; }</pre>

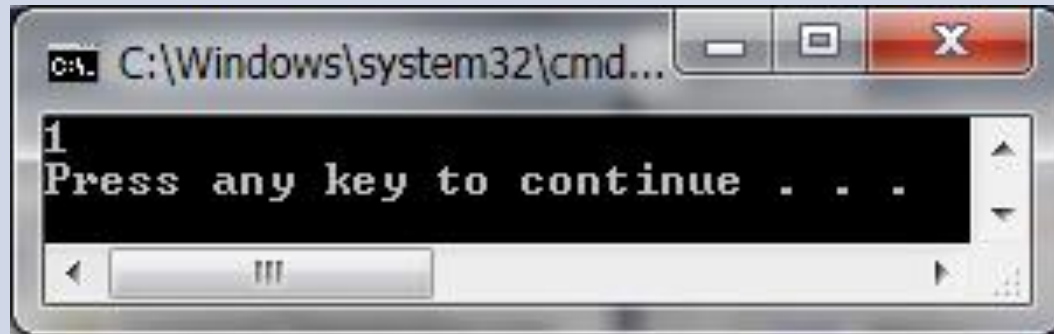
הרצה?

קוד

```
int main(void)
{
    int i=1;
    int j=2;
    int a=3;

    if ((a=i) || (a=j))
    {
        printf("%d\n",a);
    }
}
```


הרצה?

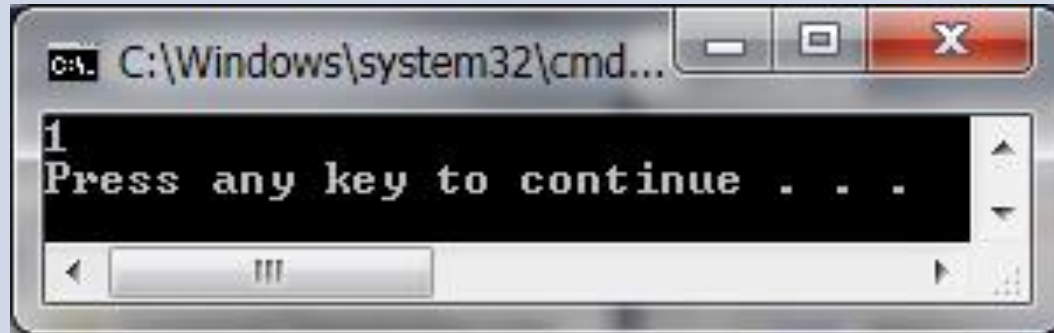


קוד

```
int main(void)
{
    int i=1;
    int j=2;
    int a=3;

    if ((a=i) || (a=j))
    {
        printf("%d\n",a);
    }
}
```

הרצה?



קוד

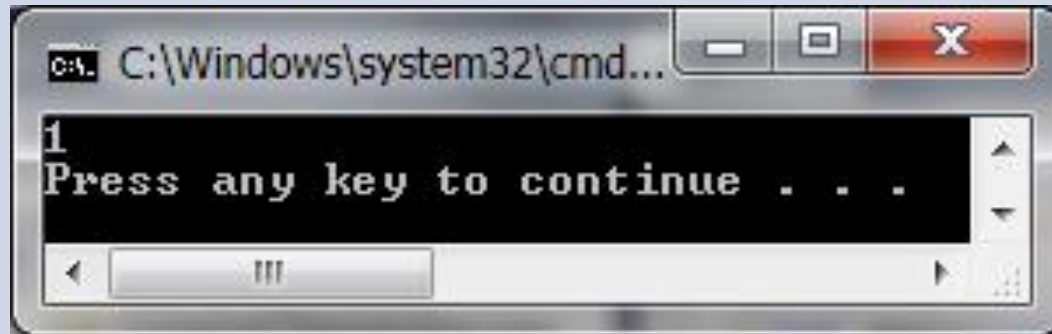
```
int main(void)
{
    int i=1;
    int j=2;
    int a=3;

    if ((a=i) || (a=j))
    {
        printf("%d\n",a);
    }
}
```

```
int main(void)
{
    int i=1;
    int j=2;
    int a=3;

    if ((a=i) | (a=j))
    {
        printf("%d\n",a);
    }
}
```

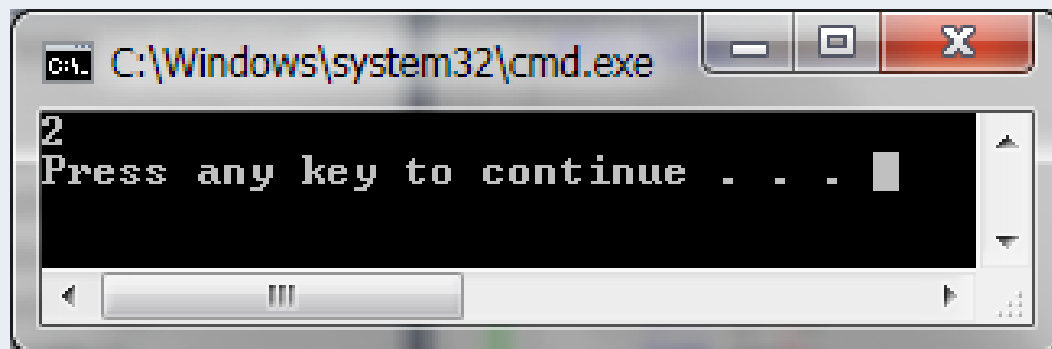
הרצה?



קוד

```
int main(void)
{
    int i=1;
    int j=2;
    int a=3;

    if ((a=i) || (a=j))
    {
        printf("%d\n",a);
    }
}
```



```
int main(void)
{
    int i=1;
    int j=2;
    int a=3;

    if ((a=i) | (a=j))
    {
        printf("%d\n",a);
    }
}
```

הרצה?

קוד

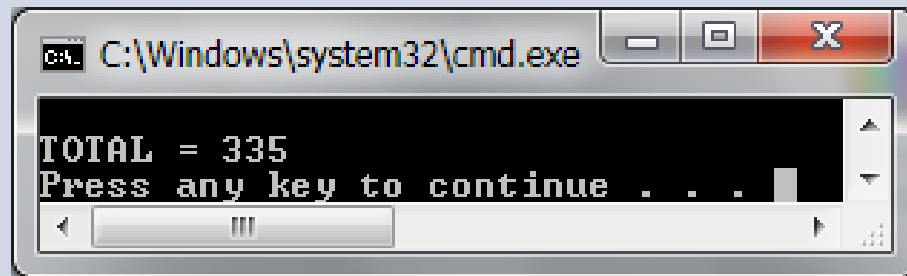
```
srand((unsigned int)time(NULL));

for (i = 0; i < 1000; i++)
{
    double x = cos((double) rand());
    double y = cos((double) rand());
    double z = cos((double) rand());

    if ((x*y)*z != x*(y*z))
    {
        total++;
        printf("%d\n",i);
    }
}

printf("\n\nTOTAL = %d\n", total);
```

הרצה?



קוד

```
srand((unsigned int)time(NULL));

for (i = 0; i < 1000; i++)
{
    double x = cos((double) rand());
    double y = cos((double) rand());
    double z = cos((double) rand());

    if ((x*y)*z != x*(y*z))
    {
        total++;
        printf("%d\n",i);
    }
}

printf("\n\nTOTAL = %d\n", total);
```

הרצה?

קוד

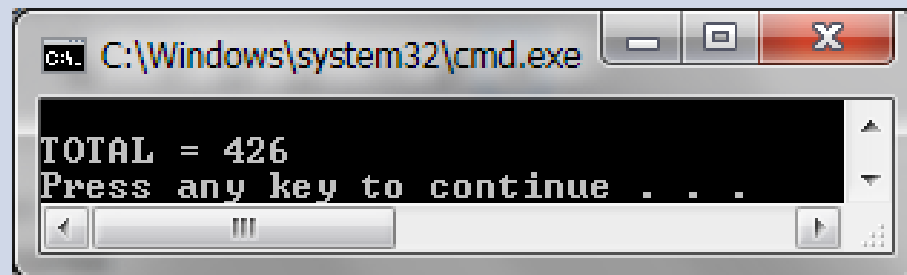
```
srand((unsigned int)time(NULL));

for (i = 0; i < 1000; i++)
{
    double x = cos((double) rand());
    double y = cos((double) rand());

    if ((x+x*y) != (x*(1+y)))
    {
        total++;
        printf("%d\n",i);
    }
}

printf("\n\nTOTAL = %d\n", total);
```

הרצה?



קוד

```
srand((unsigned int)time(NULL));

for (i = 0; i < 1000; i++)
{
    double x = cos((double) rand());
    double y = cos((double) rand());

    if ((x+x*y) != (x*(1+y)))
    {
        total++;
        printf("%d\n",i);
    }
}

printf("\n\nTOTAL = %d\n", total);
```

חימום

שגיאות?

קוד

```
class Father {
public:

    virtual void SALARY(void){printf("100\n");}
};

class Son : public Father {
public:

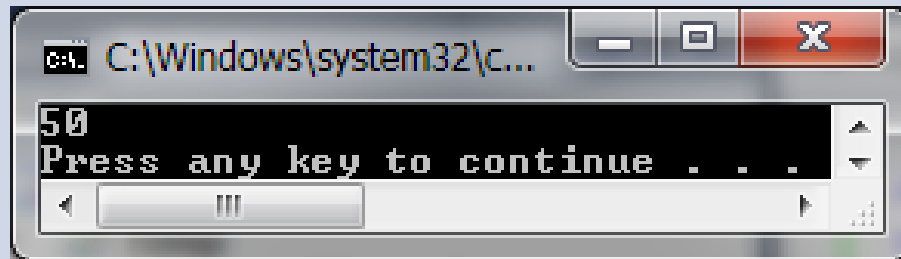
    virtual void SALARY(void){printf("50\n");}
};

int main(void)
{
    Father *x = new Son;

    x->SALARY();
}
```


חימום

שגיאות?



קוד

```
class Father {
public:

    virtual void SALARY(void){printf("100\n");}

};

class Son : public Father {
public:

    virtual void SALARY(void){printf("50\n");}

};

int main(void)
{
    Father *x = new Son;

    x->SALARY();
}
```

חימום

שגיאות?

קוד

```
class Father {
public:

    virtual void SALARY(void){printf("100\n");}

};

class Son : public Father {
public:

    virtual void SALARY(void){printf("50\n");}

};

int main(void)
{
    Son *x = new Father;

    x->SALARY();
}
```

חימום

שגיאות?

קוד

error C2440:

```
class Father {  
public:  
  
    virtual void SALARY(void){printf("100\n");}  
  
};  
  
class Son : public Father {  
public:  
  
    virtual void SALARY(void){printf("50\n");}  
  
};  
  
int main(void)  
{  
    Son *x = new Father;  
  
    x->SALARY();  
}
```

חימום

שגיאות?	קוד
	<pre>class Father { public: virtual void SALARY(void){printf("100\n");} }; class Son : public Father { public: virtual void SALARY(void){printf("50\n");} virtual void SWIM(void){printf("###\n");} }; void f(Father *f) { f->SWIM(); } int main(void) { f(new Son); }</pre>

חימום

שגיאות?

קוד

```
error C2039: 'SWIM' :  
is not a member of 'Father'
```

```
class Father {  
public:  
  
    virtual void SALARY(void){printf("100\n");}  
};  
  
class Son : public Father {  
public:  
  
    virtual void SALARY(void){printf("50\n");}  
    virtual void SWIM(void){printf("###\n");}  
};  
  
void f(Father *f)  
{  
    f->SWIM();  
}  
  
int main(void)  
{  
    f(new Son);  
}
```

חימום

שגיאות?	קוד
	<pre>class Father { public: void SALARY(void){printf("100\n");} }; class Son : public Father { public: virtual void SALARY(){printf("50\n");} }; int main(void) { Father *x = new Son; x->SALARY(); }</pre>

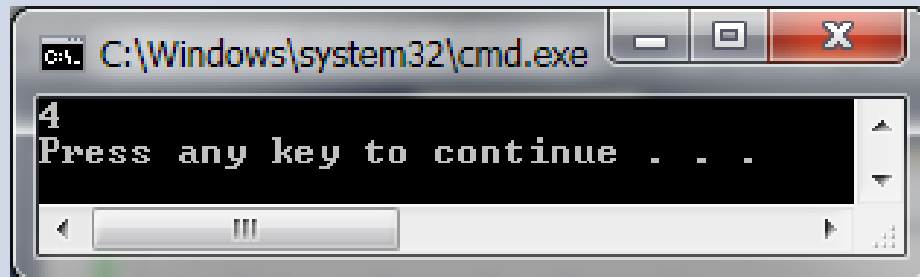
האם באמת רק צ'אק נוריס יכול לשנות ערך של const?

שגיאות?	קוד
	<pre>int main(void) { const int c = 4; int *y = (int *) ((int) &c); *y = 800; printf("%d\n",c); }</pre>

חימום

שגיאות?

קוד



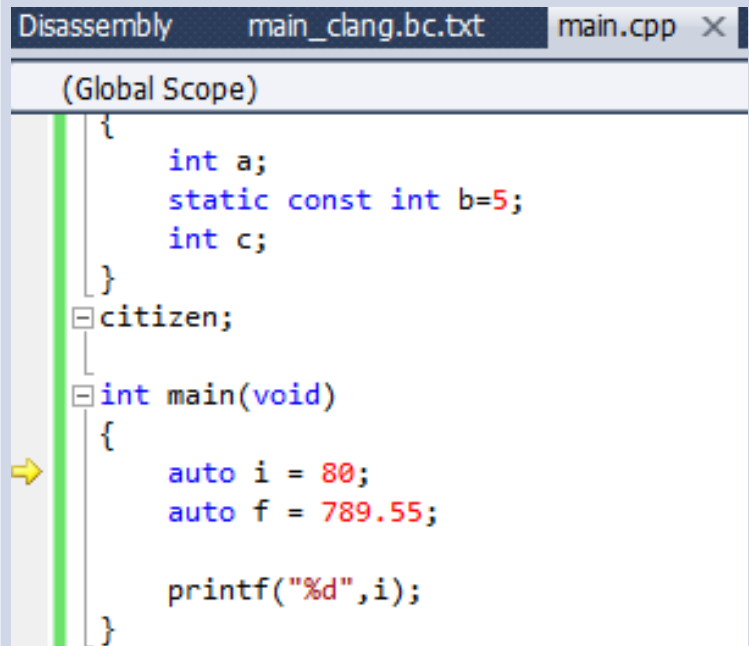
```
int main(void)
{
    const int c = 4;
    int *y = (int *) ((int) &c);
    *y = 800;

    printf("%d\n",c);
}
```


חימום

שגיאות?

קוד



The screenshot shows a code editor window with two tabs: 'Disassembly' and 'main_clang.bc.txt'. The 'main.cpp' tab is active, showing the following code:

```
(Global Scope)
{
    int a;
    static const int b=5;
    int c;
}
citizen;
int main(void)
{
    auto i = 80;
    auto f = 789.55;

    printf("%d",i);
}
```

A yellow arrow points to the opening curly brace of the `main` function.

חימום

שגיאות?

Watch 1		
Name	Value	Type
i	3931836	int
f	6.356563620102e-317#DEN	double

קוד

```
Disassembly  main_clang.bc.txt  main.cpp X
(Global Scope)
{
    int a;
    static const int b=5;
    int c;
}
citizen;
int main(void)
{
    auto i = 80;
    auto f = 789.55;

    printf("%d",i);
}
```

חימום

שגיאות?	קוד
	<pre>int main(int argc, char **argv) { if (argc > 2) main(2, argv); return 0; }</pre>

חימום

שגיאות?	קוד
<div>1 succeeded.</div>	<pre>int main(int argc, char **argv) { if (argc > 2) main(2, argv); return 0; }</pre>

חימום

שגיאות?	קוד
	<pre>void f(char *input) { *input = 'G'; } int main(int argc, char **argv) { const char *p = "party"; f(p); return 0; }</pre>

חימום

שגיאות?	קוד
<pre>warning C4090: 'function': different 'const' qualifiers</pre>	<pre>void f(char *input) { *input = 'G'; } int main(int argc, char **argv) { const char *p = "party"; f(p); return 0; }</pre>

חימום

שגיאות?	קוד
	<pre>int main(int argc, char **argv) { char *p = "great"; char *q = "party"; if (p > q) { return 80; } if (p < q) { return 20; } }</pre>

חימום

שגיאות?

קוד

```
int main(int argc, char  
{  
    char *p = "great";  
    char *q = "party";  
  
    if (p > q)  
    {  
        return 80;  
    }  
    if (p < q) ≤ 3ms elapse  
    {  
        return 20;  
    }  
}
```

114 %

Memory 1

0x001E903C	67 72 65 61 74	great
0x001E9041	00 00 00 70 61	...pa
0x001E9046	72 74 79 00 00	rty..

```
int main(int argc, char **argv)  
{  
    char *p = "great";  
    char *q = "party";  
  
    if (p > q)  
    {  
        return 80;  
    }  
    if (p < q)  
    {  
        return 20;  
    }  
}
```


חימום

שגיאות?	קוד
	<pre>int main(int argc, char **argv) { char *p = "great"; char *q = "great"; if (p > q) { return 80; } if (p < q) { return 20; } }</pre>

חימום

שגיאות?

קוד

```
int main(int argc, char **argv)
{
    char *p = "great";
    char *q = "great";

    if (p > q)
    {
        return 80;
    }
    if (p < q)
    {
        return 20;
    }
} ≤ 1ms elapsed
```

```
int main(int argc, char **argv)
{
    char *p = "great";
    char *q = "great";

    if (p > q)
    {
        return 80;
    }
    if (p < q)
    {
        return 20;
    }
}
```

האם ה destructors ייקראו או לא?

```
class A { public:
    int a;
    ~A() { printf("destructing A"); }
};

class B { public:
    int a;
    ~B() { printf("destructing B"); }
};

void f(char *input)
{
    A a;
    B b;

    if (strlen(input) < 10)
    {
        throw new int(8); ≤ 4ms elapsed
    }
}

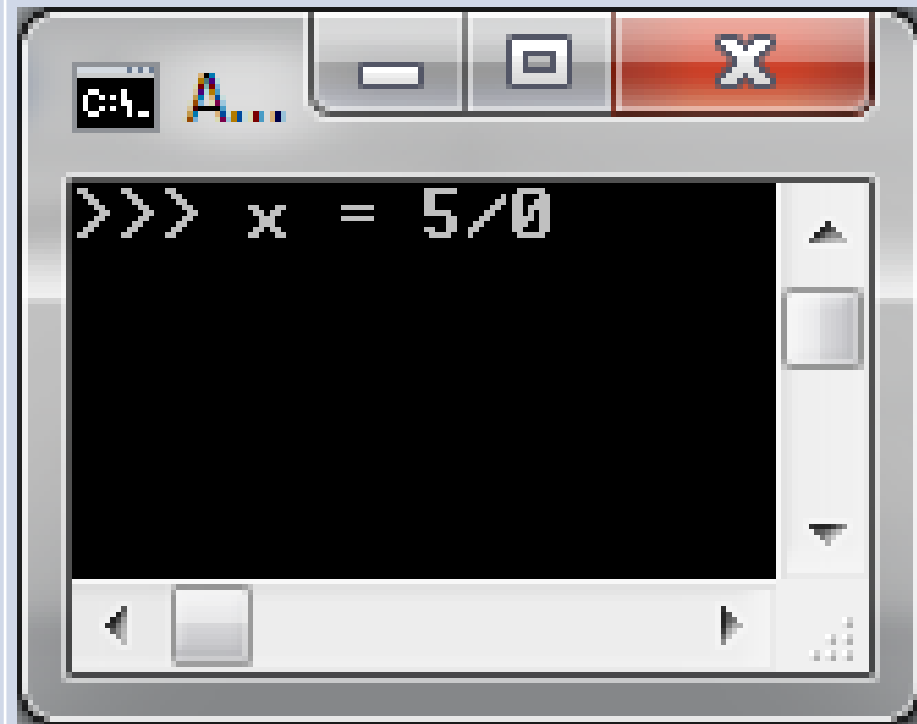
int main(int argc, char **argv)
{
    try
    {
        f("great");
    }
    catch (...)
    {
    }
}
```

Viewing Options				<input checked="" type="checkbox"/> Show code bytes	<input checked="" type="checkbox"/> Show address
				<input checked="" type="checkbox"/> Show source code	<input checked="" type="checkbox"/> Show symbols
				<input type="checkbox"/> Show line numbers	
throw new int(8);					
011A1965	6A 04	push	4		
011A1967	E8 5A F9 FF FF	call	operator new (011A12C6h)		
011A196C	83 C4 04	add	esp,4		
011A196F	89 85 08 FF FF FF	mov	dword ptr [ebp-0F8h],eax		
011A1975	83 BD 08 FF FF FF 00	cmp	dword ptr [ebp-0F8h],0		
011A197C	74 1A	je	f+88h (011A1998h)		
011A197E	8B 85 08 FF FF FF	mov	eax,dword ptr [ebp-0F8h]		
011A1984	C7 00 08 00 00 00	mov	dword ptr [eax],8		
011A198A	8B 8D 08 FF FF FF	mov	ecx,dword ptr [ebp-0F8h]		
011A1990	89 8D 00 FF FF FF	mov	dword ptr [ebp-100h],ecx		
011A1996	EB 0A	jmp	f+92h (011A19A2h)		
011A1998	C7 85 00 FF FF FF 00 00 00 00	mov	dword ptr [ebp-100h],0		
011A19A2	8B 95 00 FF FF FF	mov	edx,dword ptr [ebp-100h]		
011A19A8	89 95 14 FF FF FF	mov	dword ptr [ebp-0ECh],edx		
011A19AE	68 4C A2 1A 01	push	offset __TI2PAH (011AA24Ch)		
011A19B3	8D 85 14 FF FF FF	lea	eax,[ebp-0ECh]		
011A19B9	50	push	eax		
011A19BA	E8 CF F9 FF FF	call	__CxxThrowException@8 (011A138Eh)		
}					
011A19BF	C6 45 FC 00	mov	byte ptr [ebp-4],0		
011A19C3	8D 4D E0	lea	ecx,[b]		
011A19C6	E8 E8 F7 FF FF	call	B::~~B (011A11B3h)		
011A19CB	C7 45 FC FF FF FF FF	mov	dword ptr [ebp-4],0FFFFFFFFh		
011A19D2	8D 4D EC	lea	ecx,[a]		
011A19D5	E8 BC F6 FF FF	call	A::~~A (011A1096h)		

חימום

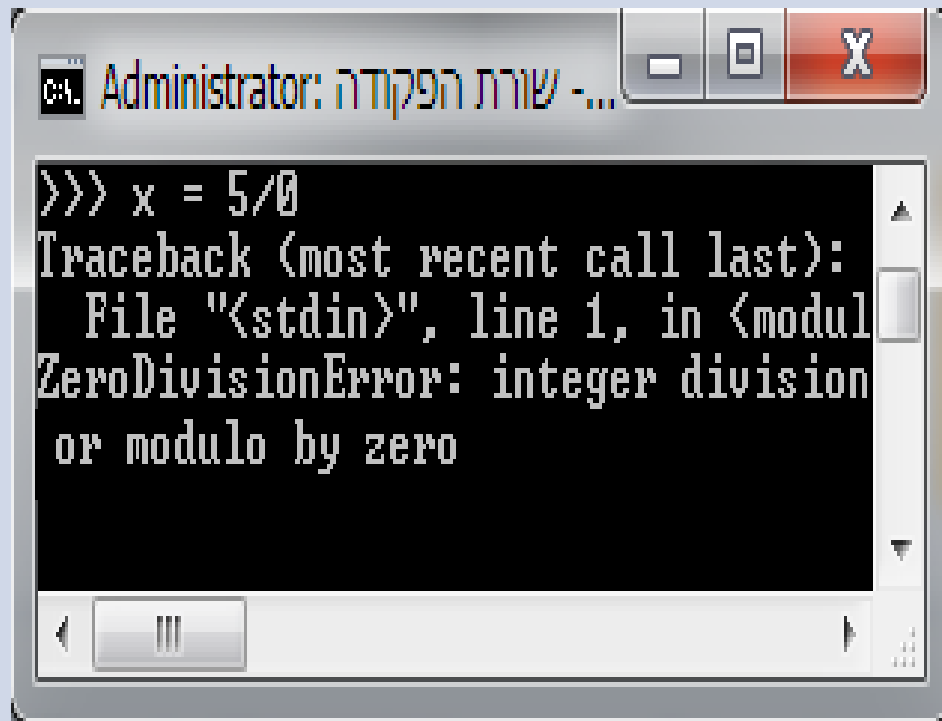
שגיאות?

קוד



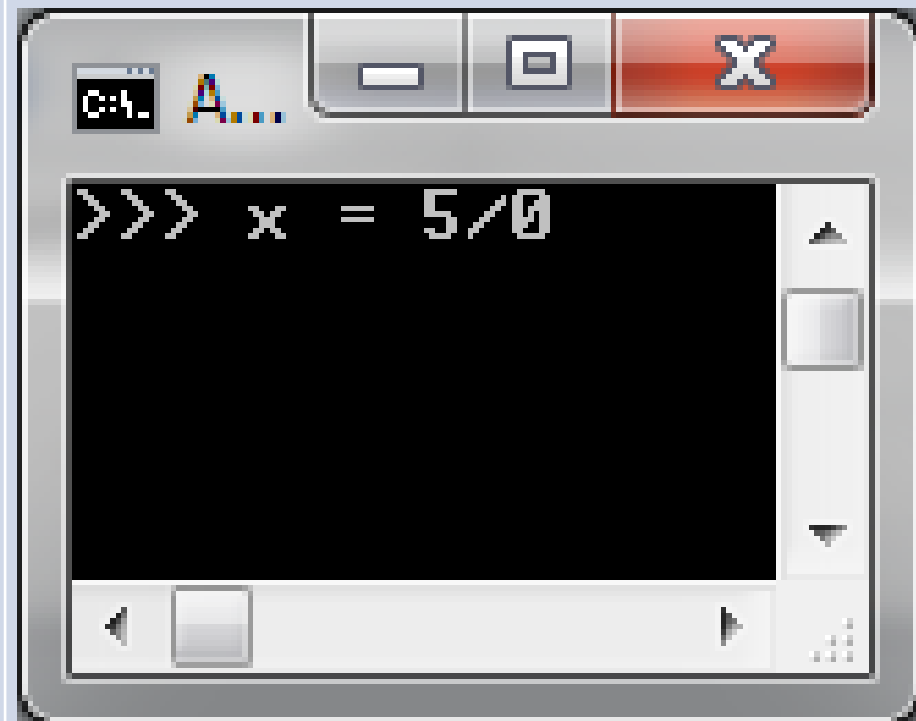
חימום

שגיאות?



```
>>> x = 5/0
Traceback (most recent call last):
  File "<stdin>", line 1, in <module>
ZeroDivisionError: integer division
or modulo by zero
```

קוד

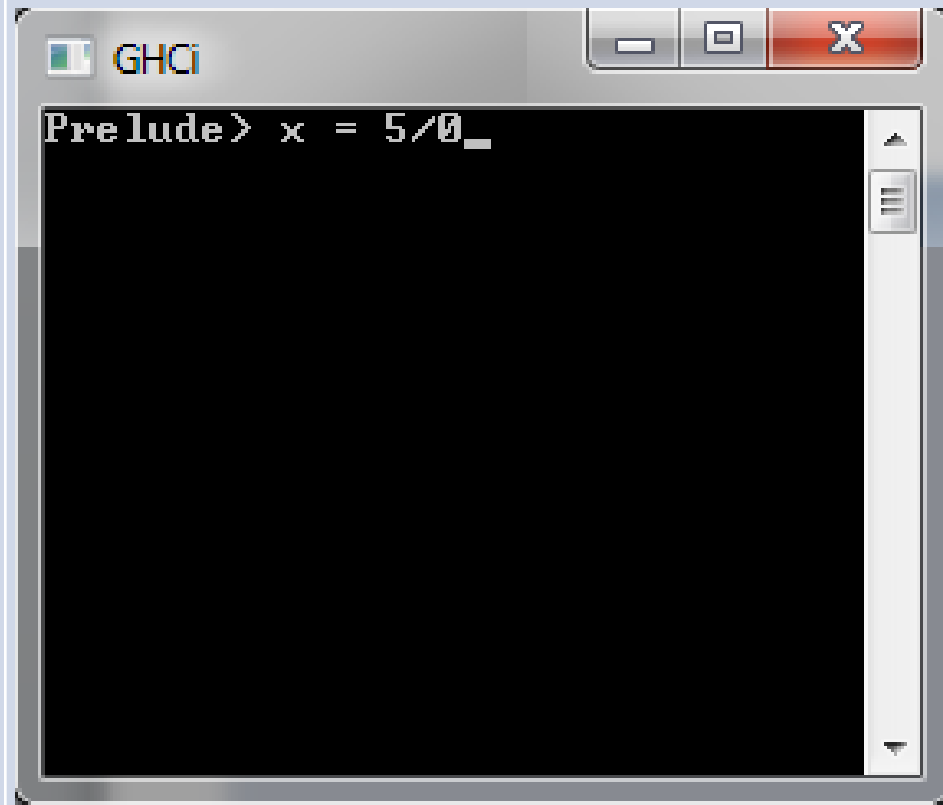


```
>>> x = 5/0
```

חימום

שגיאות?

קוד



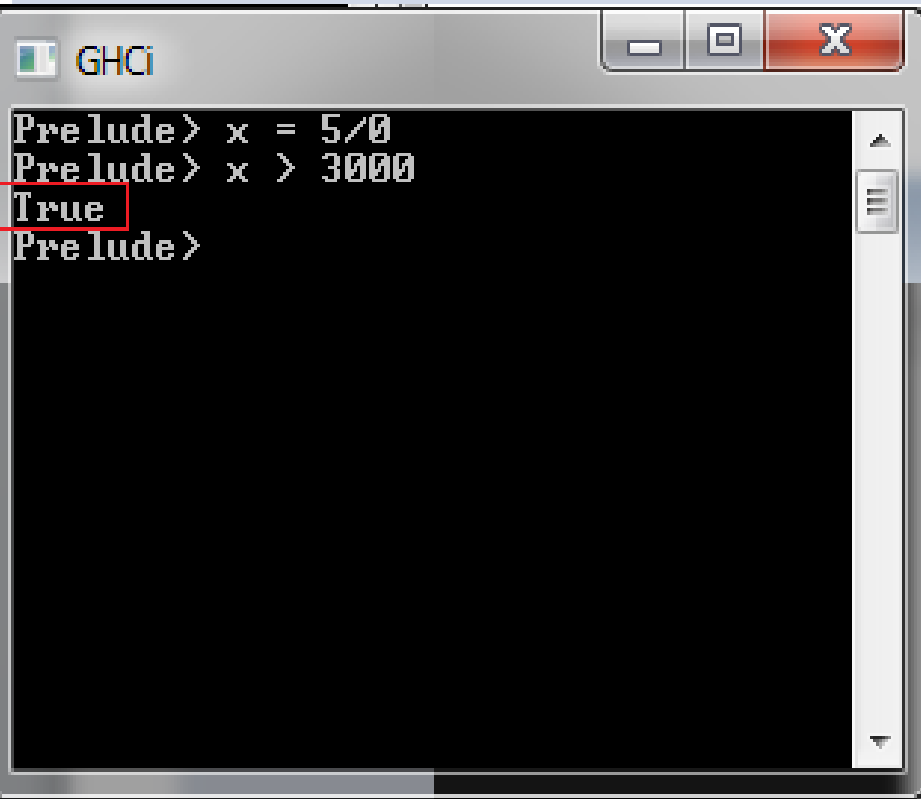
A screenshot of a GHCi terminal window. The window title is "GHCi". The prompt is "Prelude>". The user has entered the expression `x = 5/0_`. The terminal is otherwise empty, with a black background and white text. The window has standard macOS-style window controls (minimize, maximize, close) in the top right corner.

```
GHCi
Prelude> x = 5/0_
```

חימום

שגיאות?

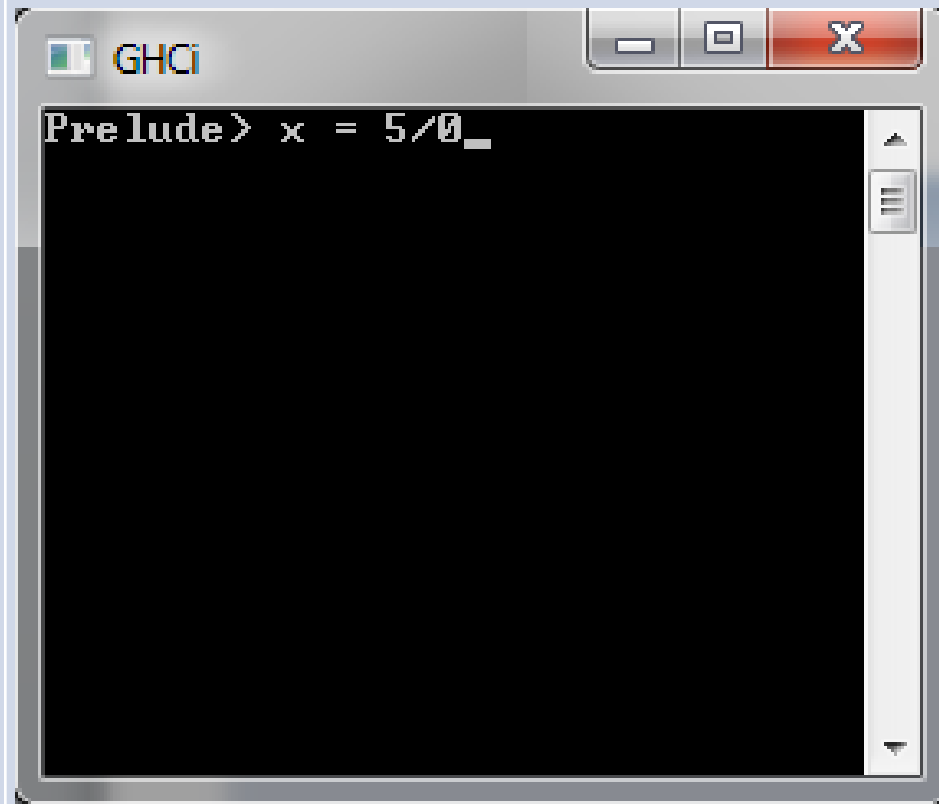
קוד



A screenshot of a GHCi terminal window. The title bar says 'GHCi'. The terminal content shows the following commands and output:

```
Prelude> x = 5/0
Prelude> x > 3000
True
Prelude>
```

The word 'True' is highlighted with a red rectangular box.



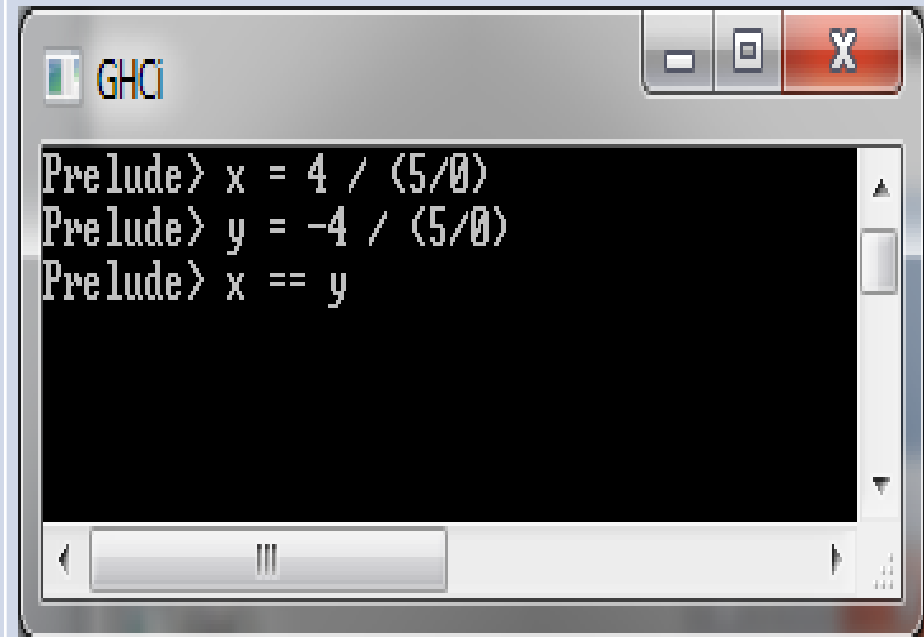
A screenshot of a GHCi terminal window. The title bar says 'GHCi'. The terminal content shows the following command:

```
Prelude> x = 5/0_
```

חימום

שגיאות?

קוד



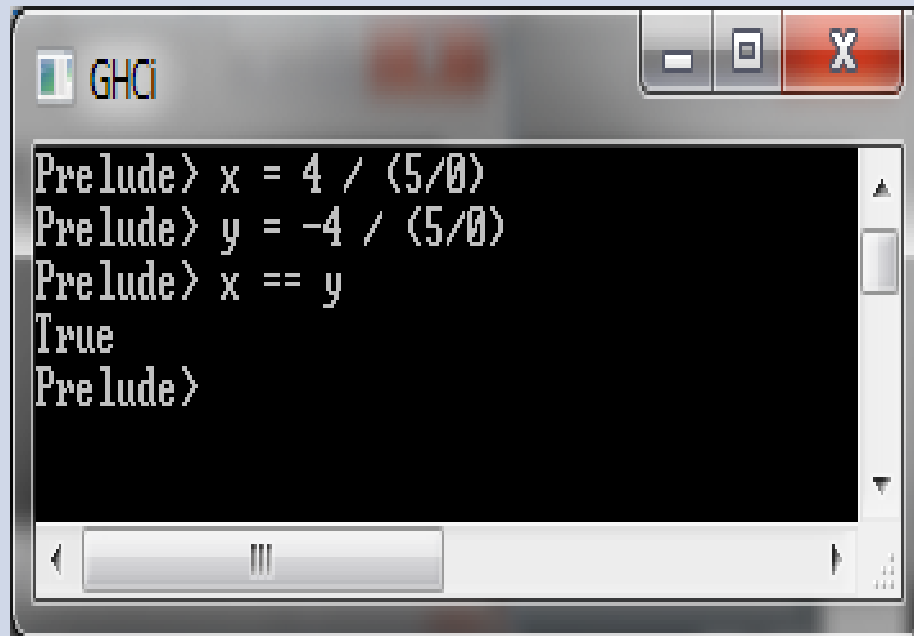
A screenshot of a GHCi terminal window. The window has a title bar with the text 'GHCi' and standard window controls (minimize, maximize, close). The terminal content shows three lines of Haskell code being executed in the 'Prelude' environment:

```
Prelude> x = 4 / (5/0)  
Prelude> y = -4 / (5/0)  
Prelude> x == y
```

The terminal has a black background and white text. There are scrollbars on the right and bottom of the terminal area.

חימום

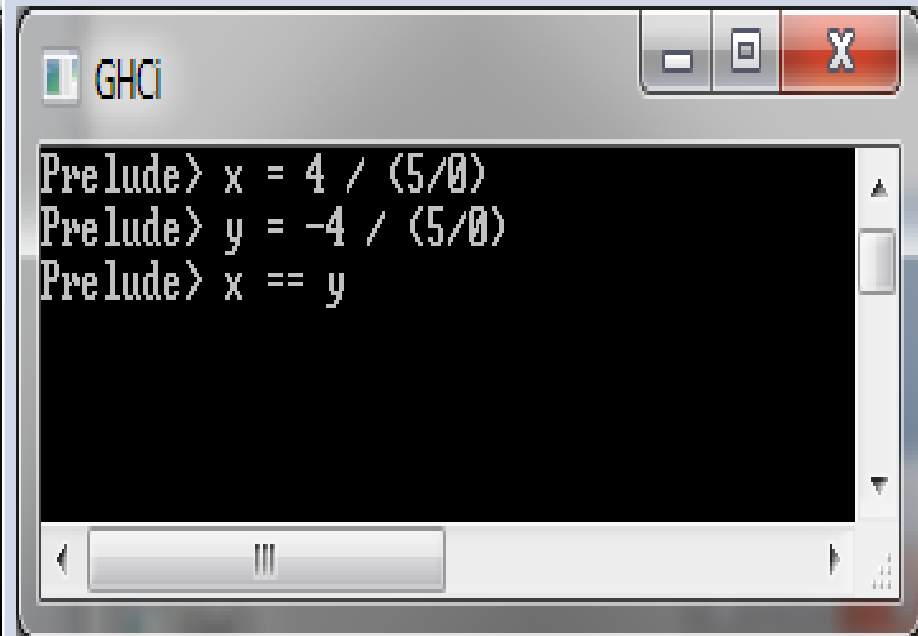
שגיאות?



```
Prelude> x = 4 / (5/0)
Prelude> y = -4 / (5/0)
Prelude> x == y
True
Prelude>
```

The image shows a screenshot of a GHCi window. The window title is 'GHCi'. The terminal text shows the user entering three lines of code: `x = 4 / (5/0)`, `y = -4 / (5/0)`, and `x == y`. The output shows `True` for the comparison, indicating that the division by zero was handled silently or the result was coerced to a type where the comparison is true. The window has standard macOS window controls (red, yellow, green buttons) and a scrollbar on the right.

קוד



```
Prelude> x = 4 / (5/0)
Prelude> y = -4 / (5/0)
Prelude> x == y
```

The image shows a screenshot of a GHCi window. The window title is 'GHCi'. The terminal text shows the user entering three lines of code: `x = 4 / (5/0)`, `y = -4 / (5/0)`, and `x == y`. The output is empty, suggesting a runtime error (division by zero) occurred before the comparison was evaluated. The window has standard macOS window controls (red, yellow, green buttons) and a scrollbar on the right.