

**UNIVERSITY OF SASKATCHEWAN**  
**Department of Mathematics & Statistics**

**Mathematics 101.3 Quiz #3**

March 28, 2001

Time: 50 minutes

Instructor: *Doug MacLean*

---

**CLOSED BOOK — NO CALCULATORS PERMITTED** Each question is worth 4%

**PART I**

The possible answers to all questions in Part I are the digits in the **ANSWER SET**:

---

(A) 0    (B) 1    (C) 2    (D) 3    (E) 4    (F) 5    (G) 6    (H) 7    (I) 8    (J) 9

---

Evaluate

**(1)**  $2(e^{\ln 3})$

**(2)**  $\log_2 128$

---

Find  $f'(1)$  if:

**(3)**  $f(x) = \frac{30}{7} \ln(7x + 3)$     **(4)**  $f(x) = \frac{4}{e^2} e^{\frac{x+3}{2}}$     **(5)**  $f(x) = 150 \ln\left(\frac{x+4}{x+5}\right)$   
**(6)**  $f(x) = \frac{8^x}{2 \ln 8}$     **(7)**  $f(x) = \frac{8}{3 \ln 7} 7^{x^3-1}$     **(8)**  $f(x) = 80 \ln\left(\frac{(x+4)^8}{(x+3)^6}\right)$   
**(9)**  $f(x) = x^6 e^{-x+1}$     **(10)**  $f(x) = \frac{x^6 e}{e^x}$     **(11)**  $f(x) = -6 \frac{e^{x-1}}{5x^6}$

---

The line tangent to the graph of  $y = 7 - e^{2(x-1)}$  at the point (1, 6) has its

$x$ -intercept = **(12)**

and its  $y$ -intercept = **(13)**

---

Solve for  $x$ :

**(14)**  $\log_x 16 = 2$

**(15)**  $\log_{(x^2)} 16 = 2$

# PART II

The possible answers to all questions in Part II are the letters A to J

Part of the graph of  $y = f(x) = \left| \frac{x^2 - 1}{2} \right|$  is shown to the right.

Parts of the graphs of

(16)  $y = f(x + 1)$ ,

(17)  $y = f(x) + 1$ ,

(18)  $y = f(x - 1)$ ,

(19)  $y = f(x) - 1$ ,

(20)  $y = 2f(x)$ ,

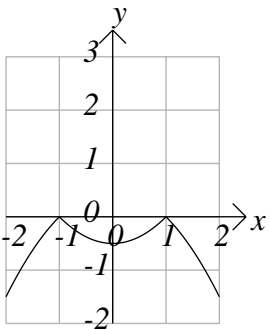
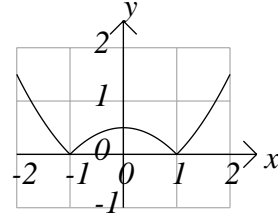
(21)  $y = -f(x)$ ,

(22)  $y = f(x)/2$ ,

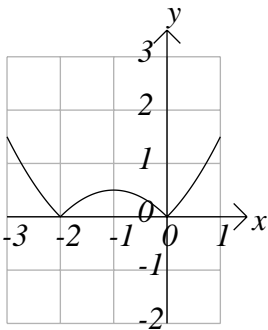
(23)  $y = f(2x)$ ,

(24)  $y = -f(x) + 1$ , and

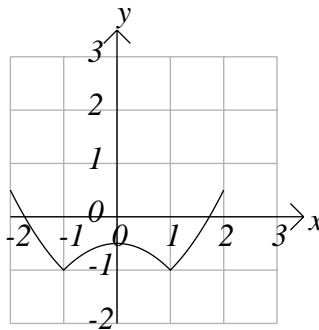
(25)  $y = f(x/2)$ , are shown below. Match them.



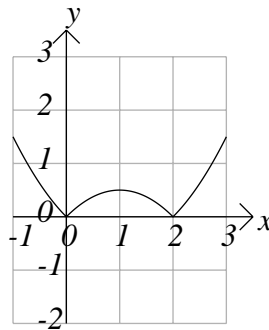
**A**



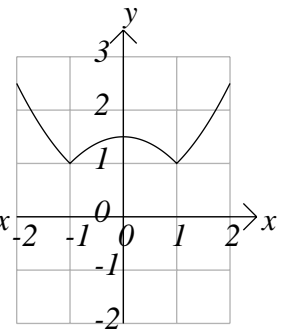
**B**



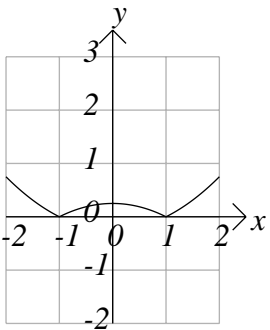
**C**



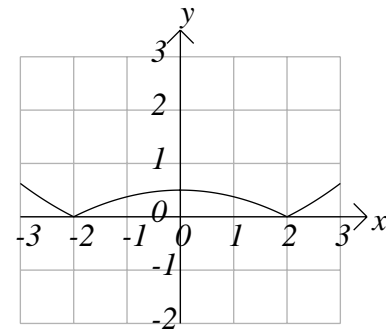
**D**



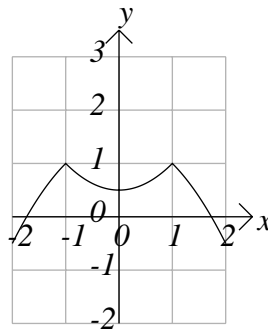
**E**



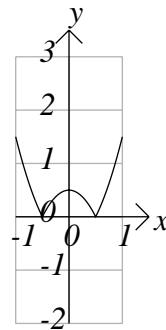
**F**



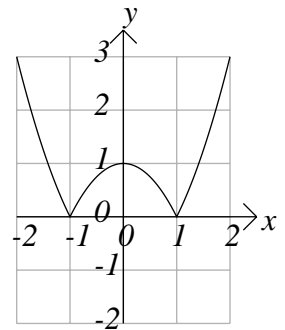
**G**



**H**



**I**



**J**