

# ARE YOU READY 4 CALCULUS

TEACHER NAME: \_\_\_\_\_

STUDENT NAME: \_\_\_\_\_

PERIOD: \_\_\_\_\_

**25 Problems | 40 Minutes | No Calculator**

**SCORE SHEET**

STUDENT NAME: \_\_\_\_\_

Problem	Answer	Problem	Answer
1		21	
2		22	
3		23	
4		24	
5		25	
6			
7			
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9			
10			
11			
12			
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16			
17			
18			
19			
20			

**Problem: 1**

Money in a bank triples every 8 years. If \$100 is deposited today, what will its value be after 32 years?

 \$8,500 \$8,100 \$1,600 \$400

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**Problem: 2**

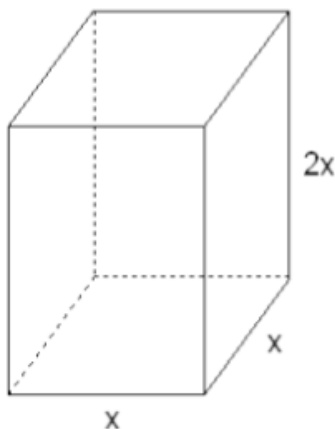
The  $y$ -coordinate of the point of intersection of the graph of  $-x + 4y = -50$  and  $x + y = 20$  is

 6 0 -14 -6

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**Problem: 3**

The rectangular box shown below has a square base and a closed top. The height is twice the length of one side of the base. Its surface area in terms of  $x$  is



$20x$

$8x + 2x^2$

$10x^2$

$6x$ 

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**Problem: 4**

If  $2^{13}$  is approximately equal to 8000, then, of the following, which best approximates  $2^{26}$ ?

640,000

6,400,000

64,000,000

$8000^{13}$ 

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**Problem: 5**

$$2^{-5} \cdot 64^{2/3} =$$

512

$\frac{1}{512}$

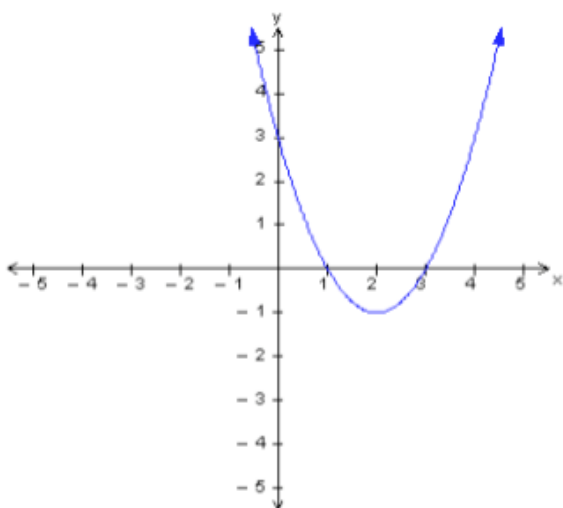
1

$\frac{1}{2}$

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**Problem: 6**

If  $f$  is a function whose graph is the parabola sketched below then  $f(x) < 0$  whenever



$x < 1$  or  $x > 3$

$x < 1$

$x > 3$

$1 < x < 3$

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**Problem: 7**

If  $\log_2(x - 6) = 6$  then  $x =$

70

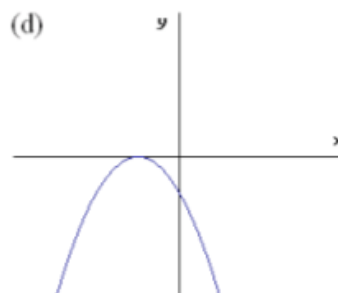
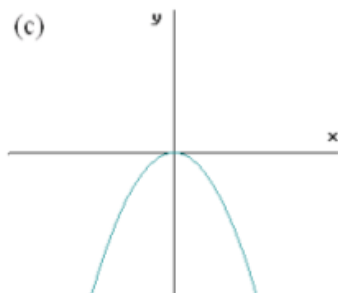
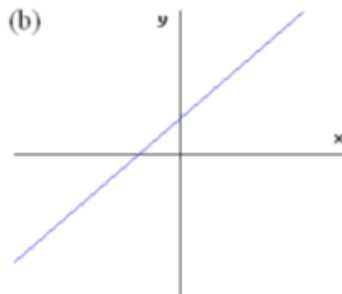
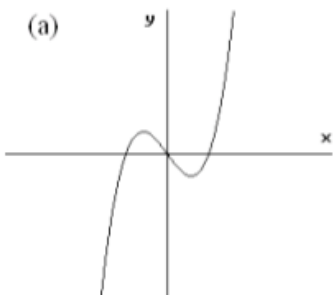
64

58

$\frac{6}{\log_2 6} + 6$

**Problem: 8**

A function  $f$  is even if  $f(-x) = f(x)$  for each  $x$  in the domain of  $f$ . Of the following, which best represents the graph of an even function?

 (a) (b) (c) (d)

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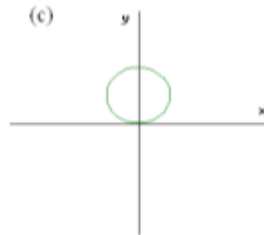
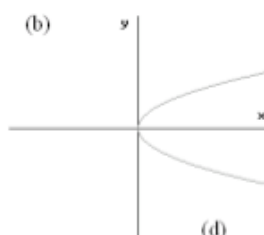
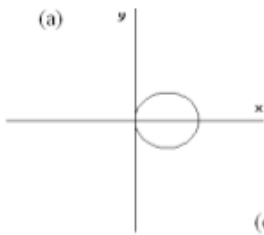
**Problem: 9**

If  $\frac{(2x - 3)(x + 5)}{x - 7} = 0$  then  $x =$

 5, 7,  $-\frac{3}{2}$  5 or  $\frac{3}{2}$  -5, 7, or  $\frac{3}{2}$  -5 or  $\frac{3}{2}$

**Problem: 10**

Of the following, which best represents the graph of  $x^2 + y^2 - 2y = 0$ ?

 (a) (b) (c) (d)

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**Problem: 11**

If  $f(x) = \frac{5x+3}{2x+3}$  then  $f(n+1) =$

  $\frac{8}{5}$   $\frac{5n+3}{2n+3} + 1$   $\frac{5n+8}{2n+5}$   $\frac{5n+4}{2n+4}$ 

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**Problem: 12**

The slope of the line that goes through the points  $(-5, 4)$  and  $(3, -12)$  is

$-\frac{1}{2}$

8

-2

4

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**Problem: 13**

Find all solutions to the equation  $3x^2 = 4x + 1$ .

$4/3, 1/3$

$\frac{2+\sqrt{7}}{3}, \frac{2-\sqrt{7}}{3}$

$\frac{4+3\sqrt{2}}{6}, \frac{4-3\sqrt{2}}{6}$

$\frac{2+\sqrt{2}}{3}, \frac{2-\sqrt{2}}{3}$ 

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**Problem: 14**

In a standard coordinate system, the graph of the equation  $y = -3x + 7$  is

 a line falling to the right a line rising to the right a horizontal line not a line

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**Problem: 15**



The inequality  $|x - 4| \leq 8$  is equivalent to

$-4 \leq x \leq 12$

$-12 \leq x \leq 4$

$-12 \leq x \leq 12$

$x \leq 12$

**Problem: 16**

The quantity  $a - b$  is a factor of how many of the following?

$a^2 - b^2$      $a^2 + b^2$      $a^3 - b^3$      $a^3 + b^3$

one only

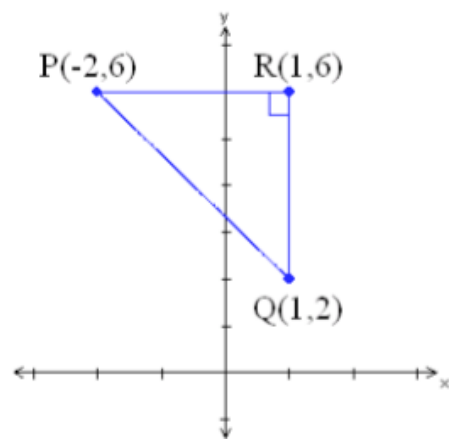
two only

three only

four

**Problem: 17**

In the figure shown below, what is the distance between the points  $P$  and  $Q$ ?



11

7

6

5

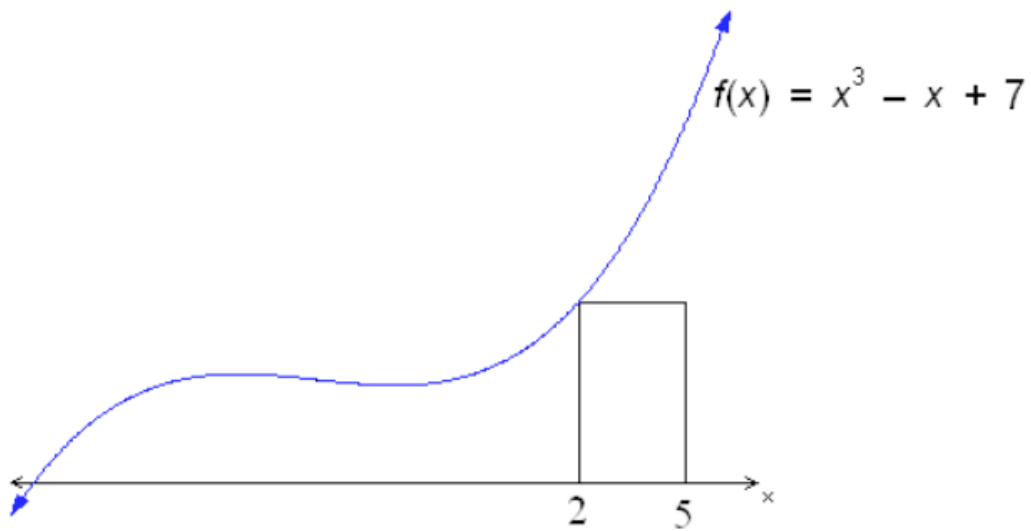
**Problem: 18**

The length of a certain rectangle is 6 meters more than twice its width. What is the perimeter of the rectangle if the area of the rectangle is 260 square meters?

- 54 meters       60 meters       66 meters       72 meters
- 

**Problem: 19**

What is the area of the rectangle shown in the figure below? (Note: The figure is not drawn to scale.)



3

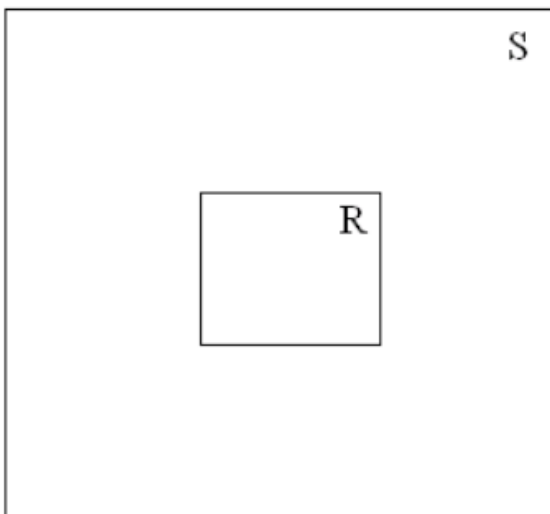
27

31

39

**Problem: 20**

A rectangle  $R$  has width  $x$  and length  $y$ . A rectangle  $S$  is formed from  $R$  by multiplying each of the sides of the rectangle  $R$  by 4 as shown in the figure below. What is the area of the portion of  $S$  lying outside  $R$ ? (Note: The figure is not drawn to scale.)



$16xy$

$15xy$

$4xy$

$x^4y^4$

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**Problem: 21**

What is the radian measure of an angle whose degree measure is  $240^\circ$ ?

$\frac{\pi}{3}$

$\frac{2\pi}{3}$

$\frac{3\pi}{4}$

$\frac{4\pi}{3}$

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**Problem: 22**

$$\csc(30^\circ) =$$

2

$\frac{2}{\sqrt{3}}$

$\sqrt{2}$

$\sqrt{3}$

**Problem: 23**

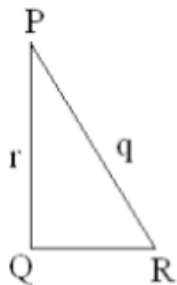
For which values of  $x$  in the interval  $0 \leq x \leq 2\pi$  does  $(\sin x - 1)(\sin x - 5) = 0$ ?

  $\frac{\pi}{2}$  only 1 and 5  $\pi$  0 and  $2\pi$ 

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**Problem: 24**

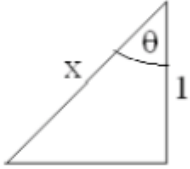
In the figure below, if  $\sin R = \frac{5}{8}$  and  $r = 2$ , then what is  $q$ ?

  $\frac{16}{5}$   $\frac{5}{4}$  5  $\frac{5}{16}$ 

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**Problem: 25**

In the right triangle shown in the figure below,  $\tan \theta =$



$x$

$x\sqrt{x^2 - 1}$

$x^2 + 1$

$\sqrt{x^2 - 1}$

Problem	Answer	Problem	Answer
1	B	21	D
2	D	22	A
3	C	23	A
4	C	24	A
5	D	25	D
6	D		
7	A		
8	C		
9	D		
10	C		
11	C		
12	C		
13	B		
14	A		
15	A		
16	B		
17	D		
18	D		
19	D		
20	B		