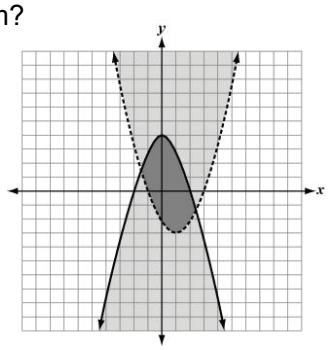
EOC Prep 2

Grade: 9-12
Subject: Alg 2
Date: 3/26/2012

1 Which ordered pair is a solution to the graphed system?



- A (-2,-3)
- B (-1,2)
- C (1,-3)
- D (2,3)

2 What is the vertical asymptote of the graph of $y = \log_4(x-3)$

- A x=-3
- B x=0
- C x=3
- D x=4

3 Company A's public relations manager needs information for an ad campaign. The monthly profits through August for Company A are given in the table below. Which measure would best emphasize the success of the company?

- A mean
- B median
- C mode
- D range

Monthly Profits

Company A
$2,750,000
$2,900,000
$2,850,000
$2,750,000
$2,900,000
$2,750,000
$3,150,000
$2,850,000

4 What is the value of x in the equation below?

$$2(10x+8)-1=5(x-6)$$

- A $x=-3$
- B $x=-\frac{13}{15}$
- C $x=\frac{3}{5}$
- D $x=3$

5 How are functions f and g alike?

$$f(x)=x(x+3)(x+5)$$
$$g(x)=x^3+x^2+2x+24$$

- A They both have 3 real zeros.
- B They are both cubic functions.
- C They both have an imaginary root.
- D They are both exponential functions.

6 If x = 2 and y = 3, what is the value of ?

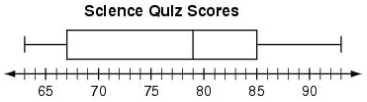
$$\frac{3x^2y^0}{5x^{-1}y^2}$$

- A 0
- B $\frac{2}{15}$
- C $\frac{8}{15}$
- D $\frac{24}{25}$

7 How does the graph of the function $f(x) = x^3 + 1$ compare to the parent function $f(x) = x^3$?

- A shifted up 1 unit
- B shifted down 1 unit
- C shifted left 1 unit
- D shifted right 1 unit

8 A class of twenty students was to take a science quiz. Four students were absent. The teacher created the following box-and-whisker plot of the 16 scores she received. The next day the 4 absent students took the quiz. If their scores were 63, 64, 92, and 93, what effect would this have on the lower quartile, the median, and the upper quartile?



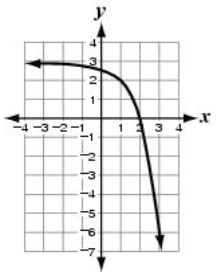
- A The median would increase, but the upper and lower quartile would stay the same.
- B The median would increase, the upper quartile would decrease, and the lower quartile would increase
- C The median would stay the same, the upper quartile would decrease, and the lower quartile would increase
- D The median would stay the same, the upper quartile would increase or stay the same, and the lower quartile would would decrease or stay the same.

9 Ms. Juarez showed the graphs of the functions $y = \log_2 x$ and $y = \log_4 x$ to her students. Which conclusion is incorrect?

- A The x-intercept of each graph is 0.
- B The graphs never intersect the y-axis.
- C The domain of each function is $\{x : x > 0\}$
- D The range of each function is {y: all real numbers}.

10 Which function is represented by the graph'

- A $y = -3^x + 3$
- B $y = -\left(\frac{1}{3}\right)^x + 3$
- C $y = -3^{x-1} + 1$
- D $y = -\left(\frac{1}{3}\right)^{x-1} + 3$



11 Which data set has a mean less than or equal to 80, a median of 40, and a mode of 75?

- A {25, 30, 35, 40, 74, 75, 80}
- B {15, 40, 40, 75, 76, 77, 80}
- C {0, 38, 39, 40, 75, 75, 300}
- D {20, 30, 35, 40, 75, 75, 100}

12 Which list shows the numbers and in ascending order?

$$-\sqrt{8}, |-8|, \frac{1}{8}, -8.35, \sqrt[3]{8}, -8\frac{3}{5}$$

- A $-8\frac{3}{5}, -8.35, |-8|, -\sqrt{8}, \frac{1}{8}, \sqrt[3]{8}$
- B $-8\frac{3}{5}, -8.35, -\sqrt{8}, \frac{1}{8}, \sqrt[3]{8}, |-8|$
- C $-8.35, -8\frac{3}{5}, -\sqrt{8}, \frac{1}{8}, \sqrt[3]{8}, |-8|$
- D $|-8|, \sqrt[3]{8}, \frac{1}{8}, -\sqrt{8}, -8.35, -8\frac{3}{5}$

13 In an experiment, the distance traveled by an object varies directly with the rate the object is traveling. Which type of function would be used to represent this relationship?

- A cubic
- B linear
- C quadratic
- D absolute value

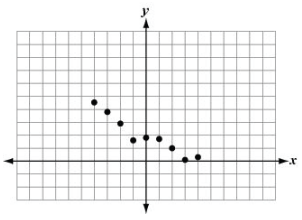
14 What is the solution to ? $|x-3| = 7$

- A x=-10,4
- B x=-10,10
- C x=-4,4
- D x=-4,10

15 Which equation represents the graph of a parabola that opens up and is wider than the graph of $y = x^2$?

- A $y = 2x^2 + 3x - 5$
- B $y = \frac{1}{2}x^2 + 3x - 5$
- C $y = -2x^2 + 3x - 5$
- D $y = -\frac{1}{2}x^2 + 3x - 5$

16 Which equation best models the data in the scatterplot?



- A $y = -x + 2$
- B $y = -2x + 2$
- C $y = -\frac{1}{2}x + 2$
- D $y = -\frac{1}{4}x + 1$

17 Which value of x is the solution to ?

$$100^{x+6} = 1000^{2x+3}$$

- A $\frac{3}{10}$
- B $\frac{3}{4}$
- C 3
- D 30

18 Which recursive rule describes the sequence 3, 7, 11, 15, . . . ?

○A $\begin{cases} a_1 = 3 \\ a_n = 3a_{n-1} - 2 \end{cases}$

○B $\begin{cases} a_1 = 3 \\ a_n = 4a_{n-1} - 5 \end{cases}$

○C $\begin{cases} a_1 = 3 \\ a_n = 2a_{n-1} + 1 \end{cases}$

○D $\begin{cases} a_1 = 3 \\ a_n = a_{n-1} + 4 \end{cases}$

a_1 = first term
a_n = nth term
a_{n-1} = previous term

19 Ms. Smith has 30 students in her class: 20 are boys and 10 are girls. Mr. Jones also has 30 students in his class: 15 are boys and 15 are girls. One student is selected from each class to be on the student council. What is the probability that 2 boys are selected?

○A $\frac{1}{6}$ ○C $\frac{1}{2}$

○B $\frac{1}{3}$ ○D $\frac{7}{12}$

20 Tickets for the school play cost $5 for adults and $3 for students. On opening night, 150 tickets were sold and $560 was collected. How much was collected from the sale of student tickets?

○A $55
○B $95
○C $275
○D $285

21 The dimensions of a rectangle are given in the diagram below. If $x = \sqrt{7}$, what is the perimeter of the rectangle?

○A $3 + 7\sqrt{7}$
○B $10\sqrt{7}$
○C $6 + 14\sqrt{7}$
○D $20\sqrt{7}$