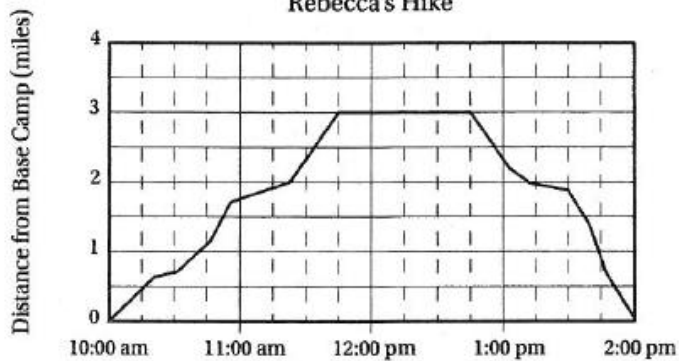


THIS IS a CALCULATOR portion of the EXAM, you have THIRTEEN MINUTES to complete

QUESTION 1



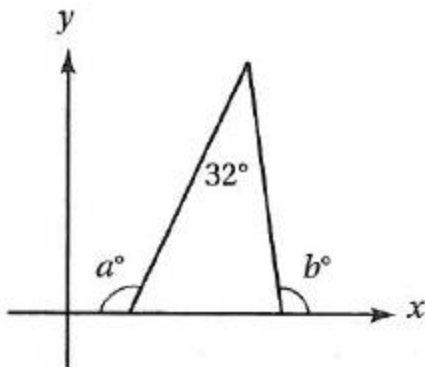
Rebecca's Hike



The graph above shows Rebecca's distance from her base camp as she hiked to a mountaintop, took a 1-hour break for lunch, and returned back to base camp. According to the graph, approximately how much longer was her hike to the mountaintop than her hike from the mountaintop back to base camp?

- A) 20 minutes
- B) 30 minutes
- C) 45 minutes
- D) 60 minutes

QUESTION 2



In the figure above, what is the value of $a + b$?

- A) 212
- B) 238
- C) 296
- D) 328

QUESTION 3

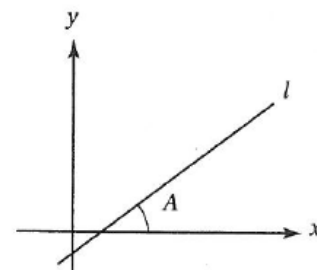


$$\frac{a+k}{b+k} = -2$$

Given the formula above, which of the following expresses k in terms of a and b ?

- A) $\frac{-a-2b}{3}$
- B) $\frac{a-2b}{3}$
- C) $\frac{-a+2b}{2}$
- D) $\frac{a-2b}{2}$

QUESTION 4



In the figure above, if $\cos A = 0.8$, what is the slope of line l ?

- A) 0.60
- B) 0.75
- C) 0.90
- D) 1.10

QUESTION 5 

The sum of three numbers is 240. If the greatest of these numbers is 50% more than the sum of the other two, what is the value of the greatest of these numbers?

- A) 96
- B) 120
- C) 140
- D) 144

QUESTION 6 

If $\frac{K+i}{i} = 1 - 2i$, where $i = \sqrt{-1}$, what is the value of K ?

- A) 2
- B) -2
- C) $2 + i$
- D) $-2 + i$

QUESTION 7 

Which of the following functions, when graphed in the xy -plane, will intersect the x -axis exactly 3 times?

- A) $f(x) = (x^2 + 1)(x^2 + 1)$
- B) $f(x) = (x^2 - 1)(x^2 + 1)$
- C) $f(x) = x^2(x^2 - 1)$
- D) $f(x) = x^2(x^2 + 1)$

Use the following for Questions 8 and 9 

$$P(t) = 250(2.4)^t$$

The formula above shows the relationship between the population, P , of a certain mushroom species on a one-acre plot of land as a function of t , the number of weeks that have passed since the mushrooms were first introduced on the plot.

QUESTION 8 

What is the meaning of the number 250 in the formula above?

- A) The plot initially contained 250 mushrooms.
- B) The population of mushrooms increases by 250 mushrooms per week.
- C) The population of mushrooms increases by 250% each week.
- D) It will take 250 weeks for the population of mushrooms to double.

QUESTION 9 

By what percent should we expect the mushroom population to increase between the start of week 6 and the start of week 7?

- A) 40%
- B) 140%
- C) 240%
- D) 480%

QUESTION 10



A state environmental study determines that the coastal regions of the state lose 24.5 acres of wetlands per month. At this rate, how many months will it take these coastal regions to lose a total of 343 acres?

○	○	○	○
○	○	○	○
1	1	1	1
2	2	2	2
3	3	3	3
4	4	4	4
5	5	5	5
6	6	6	6
7	7	7	7
8	8	8	8
9	9	9	9

QUESTION 12



$$V(t) = 1000(1 + k)^m$$

An analyst wants to use the formula above to estimate the value, in dollars, of a \$1,000 initial investment in a mutual fund after m quarters have passed. If a \$1,000 initial investment in this fund is worth \$1,102.50 after 2 quarters, what number should the analyst choose for k ?

○	○	○	○
○	○	○	○
1	1	1	1
2	2	2	2
3	3	3	3
4	4	4	4
5	5	5	5
6	6	6	6
7	7	7	7
8	8	8	8
9	9	9	9

QUESTION 11



If a shipment of fruit contains 6 tons of bananas, 4 tons of grapes, 2 tons of apples, and 3 tons of oranges, what fraction of the shipment, by weight, is oranges?

○	○	○	○
○	○	○	○
1	1	1	1
2	2	2	2
3	3	3	3
4	4	4	4
5	5	5	5
6	6	6	6
7	7	7	7
8	8	8	8
9	9	9	9

QUESTION 13



$$d_n = 13n + 200$$

The formula above represents the number of donuts, d_n , that a bakery sold on the n th day of a festival. If the festival lasted 3 days, what was the total number of donuts that the bakery sold during the festival?

○	○	○	○
○	○	○	○
1	1	1	1
2	2	2	2
3	3	3	3
4	4	4	4
5	5	5	5
6	6	6	6
7	7	7	7
8	8	8	8
9	9	9	9