Basic Math and Algebra Practice

# 30 Minutes – (Don’t skip any questions)

1. If , what is , in terms of and ?

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1. At a bottling company, machine A fills a bottle with spring water and machine B accepts the bottle only if the number of fluid ounces is between and . If machine B accepts a bottle containing fluid ounces, which of the following describes all possible values of ?

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1. The least integer of a set of consecutive integers is . If the sum of these integers is , how many integers are in this set?

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1. Dwayne has a newspaper route for which he collects dollars each day. From this amount he pays out dollars per day for the cost of the papers, and he saves the rest of the money. In terms of , how many days will it take Dwayne to save ?

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1. Let the operations @ and # be defined for all real numbers a and b as follows:

and

If , what is the value of y?

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1. If , which of the following must be true?

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1. If , which of the following is the greatest?

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1. Set X has x members and set Y has y members. Set Z consists of all members that are in either set X or set Y with the exception of the common members (). Which of the following represents the number of members in set Z?

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1. If is the greatest prime factor of and is the greatest prime factor of 100, what is the value of ?

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1. Let the operation @ be defined by for all numbers and , where . If , what is ?

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1. During a sale, a customer can buy one shirt for x dollars. Each additional shirt he/she buys costs dollars less than the first shirt. For example, the cost of the second shirt is dollars. Which of the following represents the customer’s cost, in dollars, for shirts bought during this sale?

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1. , where r and t are positive integers and , which of the following could be the value of ?

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1. A merchant sells three types of clocks that chime as indicated by the ~ sign in the table below. What is the total number of chimes of the inventory of clocks in the -minute period from to ?

INVENTORY OF CLOCKS AND FREQUENCY OF CHIMES

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | No. of Clocks | Chimes n times on the nth hour | Chimes once on the hour | Chimes once on the half hour |
| Type A | 10 | ~ |  | ~ |
| Type B | 5 | ~ |  |  |
| Type C | 3 |  | ~ | ~ |

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1. If is an integer greater than and if , which of the following must be true?

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|  | 1. is an integer |  |

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1. When the number is multiplied by , the result is the same as when is added to . What is the value of ?

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1. Today Al is times as old as Pat. In years; Al will be one year less than twice as old as Pat will be then. How many years old is Al today?

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1. When the integer is divided by , the quotient is and the remainder is . When is divided by , the quotient is and the remainder is . Which of the following is true?

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1. Positive integers , and satisfy the equations and . If , what is the value of ?

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