|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 1. If a family has 7 children, in how many ways could the parents have 3 boys and 4 girls as children?  ​   |  |  |  | | --- | --- | --- | |  | a. | 7 | |  | b. | 38 | |  | c. | 3 | |  | d. | 40 | |  | e. | 35 |  |  |  | | --- | --- | | *ANSWER:* | e | | *POINTS:* | 1 | | *QUESTION TYPE:* | Multi-Mode (Multiple choice) | | *HAS VARIABLES:* | True | | *OTHER:* | smnm11.01.01.08am | | *DATE CREATED:* | 12/24/2015 12:56 PM | | *DATE MODIFIED:* | 12/24/2015 12:56 PM | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 2. If an island's only residents are penguins and bears, and if there are 16 heads and 38 feet on the island, how many penguins and how many bears are on the island?  ​   |  |  |  | | --- | --- | --- | |  | a. | 12 bears, 4 penguins | |  | b. | 11 bears, 5 penguins | |  | c. | 13 bears, 3 penguins | |  | d. | 4 bears, 12 penguins | |  | e. | 3 bears, 13 penguins |  |  |  | | --- | --- | | *ANSWER:* | e | | *POINTS:* | 1 | | *QUESTION TYPE:* | Multi-Mode (Multiple choice) | | *HAS VARIABLES:* | True | | *OTHER:* | smnm11.01.01.18m | | *DATE CREATED:* | 12/24/2015 12:56 PM | | *DATE MODIFIED:* | 12/24/2015 12:56 PM | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 3. 12 full crates of walnuts weigh 414 pounds, whereas an empty crate weighs 7 pounds. How much do the walnuts alone weigh?  ​   |  |  |  | | --- | --- | --- | |  | a. | 407 pounds | |  | b. | 402 pounds | |  | c. | 330 pounds | |  | d. | 421 pounds | |  | e. | 323 pounds |  |  |  | | --- | --- | | *ANSWER:* | c | | *POINTS:* | 1 | | *QUESTION TYPE:* | Multi-Mode (Multiple choice) | | *HAS VARIABLES:* | True | | *OTHER:* | smnm11.01.01.20m | | *DATE CREATED:* | 12/24/2015 12:56 PM | | *DATE MODIFIED:* | 12/24/2015 12:56 PM | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 4. Alex, Beverly, and Cal live on the same straight road. Alex lives 13 miles from Beverly and Cal lives 2 miles from Beverly. How far does Alex live from Cal?  ​   |  |  |  | | --- | --- | --- | |  | a. | 15 miles | |  | b. | 11 miles | |  | c. | 11 miles or 15 miles | |  | d. | 13 miles or 2 miles | |  | e. | 24 miles or 17 miles |  |  |  | | --- | --- | | *ANSWER:* | c | | *POINTS:* | 1 | | *QUESTION TYPE:* | Multi-Mode (Multiple choice) | | *HAS VARIABLES:* | True | | *OTHER:* | smnm11.01.01.37m | | *DATE CREATED:* | 12/24/2015 12:56 PM | | *DATE MODIFIED:* | 12/24/2015 12:56 PM | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 5. How many 9-cent stamps are there in a dozen?  ​   |  |  |  | | --- | --- | --- | |  | a. | 10 | |  | b. | 108 | |  | c. | 9 | |  | d. | 12 | |  | e. | 3 |  |  |  | | --- | --- | | *ANSWER:* | d | | *POINTS:* | 1 | | *QUESTION TYPE:* | Multi-Mode (Multiple choice) | | *HAS VARIABLES:* | True | | *OTHER:* | smnm11.01.01.44m | | *DATE CREATED:* | 12/24/2015 12:56 PM | | *DATE MODIFIED:* | 12/24/2015 12:56 PM | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 6. If you take 5 cards from a deck of 65 cards, how many cards do you have?  ​   |  |  |  | | --- | --- | --- | |  | a. | 52 cards | |  | b. | 5 cards | |  | c. | 60 cards | |  | d. | 70 cards | |  | e. | 13 cards |  |  |  | | --- | --- | | *ANSWER:* | b | | *POINTS:* | 1 | | *QUESTION TYPE:* | Multi-Mode (Multiple choice) | | *HAS VARIABLES:* | True | | *OTHER:* | smnm11.01.01.46m | | *DATE CREATED:* | 12/24/2015 12:56 PM | | *DATE MODIFIED:* | 12/24/2015 12:56 PM | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 7. If posts are spaced 14 feet apart, how many posts are needed for 98 feet of straight-line fence?  ​   |  |  |  | | --- | --- | --- | |  | a. | 22 posts | |  | b. | 8 posts | |  | c. | 98 posts | |  | d. | 7 posts | |  | e. | 9 posts |  |  |  | | --- | --- | | *ANSWER:* | b | | *POINTS:* | 1 | | *QUESTION TYPE:* | Multi-Mode (Multiple choice) | | *HAS VARIABLES:* | True | | *OTHER:* | smnm11.01.01.48m | | *DATE CREATED:* | 12/24/2015 12:56 PM | | *DATE MODIFIED:* | 12/24/2015 12:56 PM | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 8. There are 5 separate, equal-size boxes, and inside each box there are 4 separate small boxes, and inside each of the small boxes there are 3 even smaller boxes. How many boxes are there all together?  ​   |  |  |  | | --- | --- | --- | |  | a. | 85 boxes | |  | b. | 80 boxes | |  | c. | 65 boxes | |  | d. | 90 boxes | |  | e. | 60 boxes |  |  |  | | --- | --- | | *ANSWER:* | a | | *POINTS:* | 1 | | *QUESTION TYPE:* | Multi-Mode (Multiple choice) | | *HAS VARIABLES:* | True | | *OTHER:* | smnm11.01.01.21m | | *DATE CREATED:* | 12/24/2015 12:56 PM | | *DATE MODIFIED:* | 12/24/2015 12:56 PM | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 9. Thoth, an ancient Egyptian god of wisdom and learning, has abducted Ahmes, a famous Egyptian scribe, in order to assess his intellectual prowess. Thoth places Ahmes before a large funnel set in the ground (see figure below). It has a circular opening 1,000 ft in diameter, and its walls are quite slippery. If Ahmes attempts to enter the funnel, he will slip down the wall. At the bottom of the funnel is a sleep-inducing liquid that will instantly put Ahmes to sleep for eight hours if he touches it. Thoth hands Ahmes two objects: a rope 1,006.28 ft in length and the skull of a chicken. Thoth says to Ahmes, "If you are able to get to the central tower and touch it, we will live in harmony for the next millennium. If not, I will detain you for further testing. Please note that with each passing hour, I will decrease the rope's length by a foot. Is it possible to reach the central ankh tower and touch it?  ​  ​  Ahmes' dilemma. Note that there are two ankhshaped towers. One stands on a cylindrical platform in the center of the funnel. The platform's surface is at ground level. The distance from the platform surface to the liquid is 500 ft. The other ankh tower is on land, at the edge of the funnel.  ​   |  |  |  | | --- | --- | --- | |  | a. | Yes | |  | b. | No |  |  |  | | --- | --- | | *ANSWER:* | a | | *POINTS:* | 1 | | *QUESTION TYPE:* | Multi-Mode (Multiple choice) | | *HAS VARIABLES:* | True | | *OTHER:* | smnm11.01.01.58m | | *DATE CREATED:* | 12/24/2015 12:56 PM | | *DATE MODIFIED:* | 12/24/2015 12:56 PM | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 10. If a family has 4 children, in how many ways could the parents have 2 boys and 2 girls as children?  ​  \_\_\_\_\_\_\_\_\_\_ ways  ​   |  |  | | --- | --- | | *ANSWER:* | 6 | | *POINTS:* | 1 | | *QUESTION TYPE:* | Numeric Response | | *HAS VARIABLES:* | True | | *OTHER:* | smnm11.01.01.08a | | *DATE CREATED:* | 12/24/2015 12:56 PM | | *DATE MODIFIED:* | 12/24/2015 12:56 PM | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 11. Ten full crates of walnuts weigh 390 pounds, whereas an empty crate weighs 5 pounds. How much do the walnuts alone weigh?  ​  \_\_\_\_\_\_\_\_\_\_ pounds  ​   |  |  | | --- | --- | | *ANSWER:* | 340 | | *POINTS:* | 1 | | *QUESTION TYPE:* | Numeric Response | | *HAS VARIABLES:* | True | | *OTHER:* | smnm11.01.01.20 | | *DATE CREATED:* | 12/24/2015 12:56 PM | | *DATE MODIFIED:* | 12/24/2015 12:56 PM | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 12. There are four separate, equal-size boxes, and inside each box there are two separate small boxes, and inside each of the small boxes there are three even smaller boxes. How many boxes are there all together?  ​  \_\_\_\_\_\_\_\_\_\_ boxes  ​   |  |  | | --- | --- | | *ANSWER:* | 36 | | *POINTS:* | 1 | | *QUESTION TYPE:* | Numeric Response | | *HAS VARIABLES:* | True | | *OTHER:* | smnm11.01.01.21 | | *DATE CREATED:* | 12/24/2015 12:56 PM | | *DATE MODIFIED:* | 12/24/2015 12:56 PM | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 13. How many 1-cent stamps are there in a dozen?  ​  \_\_\_\_\_\_\_\_\_\_ stamps  ​   |  |  | | --- | --- | | *ANSWER:* | 12 | | *POINTS:* | 1 | | *QUESTION TYPE:* | Numeric Response | | *HAS VARIABLES:* | True | | *OTHER:* | smnm11.01.01.44 | | *DATE CREATED:* | 12/24/2015 12:56 PM | | *DATE MODIFIED:* | 12/24/2015 12:56 PM | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 14. If you take 7 cards from a deck of 52 cards, how many cards do you have?  ​  \_\_\_\_\_\_\_\_\_\_ cards  ​   |  |  | | --- | --- | | *ANSWER:* | 7 | | *POINTS:* | 1 | | *QUESTION TYPE:* | Numeric Response | | *HAS VARIABLES:* | True | | *OTHER:* | smnm11.01.01.46 | | *DATE CREATED:* | 12/24/2015 12:56 PM | | *DATE MODIFIED:* | 12/24/2015 12:56 PM | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 15. If posts are spaced 11 feet apart, how many posts are needed for 99 feet of straight-line fence?  ​  \_\_\_\_\_\_\_\_\_\_ posts  ​   |  |  | | --- | --- | | *ANSWER:* | 10 | | *POINTS:* | 1 | | *QUESTION TYPE:* | Numeric Response | | *HAS VARIABLES:* | True | | *OTHER:* | smnm11.01.01.48 | | *DATE CREATED:* | 12/24/2015 12:56 PM | | *DATE MODIFIED:* | 12/24/2015 12:56 PM | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 16. If an island's only residents are penguins and bears, and if there are 17 heads and 38 feet on the island, how many penguins and how many bears are on the island?  ​  The number of bears is \_\_\_\_\_\_\_\_\_\_.  ​  The number of penguins is \_\_\_\_\_\_\_\_\_\_.  ​   |  |  | | --- | --- | | *ANSWER:* | 2; 15 | | *POINTS:* | 1 | | *QUESTION TYPE:* | Subjective Short Answer | | *HAS VARIABLES:* | True | | *OTHER:* | smnm11.01.01.18 | | *DATE CREATED:* | 12/24/2015 12:56 PM | | *DATE MODIFIED:* | 12/24/2015 12:56 PM | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 17. Alex, Beverly, and Cal live on the same straight road. Alex lives 9 miles from Beverly and Cal lives 4 miles from Beverly. How far does Alex live from Cal?  ​  If there is more than one answer, separate them with commas.  ​   |  |  | | --- | --- | | *ANSWER:* | 13, 5 | | *POINTS:* | 1 | | *QUESTION TYPE:* | Subjective Short Answer | | *HAS VARIABLES:* | True | | *OTHER:* | smnm11.01.01.37 | | *DATE CREATED:* | 12/24/2015 12:56 PM | | *DATE MODIFIED:* | 12/24/2015 12:56 PM | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 18. Thoth, an ancient Egyptian god of wisdom and learning, has abducted Ahmes, a famous Egyptian scribe, in order to assess his intellectual prowess. Thoth places Ahmes before a large funnel set in the ground (see figure below). It has a circular opening 1,000 ft in diameter, and its walls are quite slippery. If Ahmes attempts to enter the funnel, he will slip down the wall. At the bottom of the funnel is a sleep-inducing liquid that will instantly put Ahmes to sleep for eight hours if he touches it. Thoth hands Ahmes two objects: a rope 1,006.28 ft in length and the skull of a chicken. Thoth says to Ahmes, "If you are able to get to the central tower and touch it, we will live in harmony for the next millennium. If not, I will detain you for further testing. Please note that with each passing hour, I will decrease the rope's length by a foot. How can Ahmes reach the central ankh tower and touch it?  ​  ​  Ahmes' dilemma. Note that there are two ankh-shaped towers. One stands on a cylindrical platform in the center of the funnel. The platform's surface is at ground level. The distance from the platform surface to the liquid is 500 ft. The other ankh tower is on land, at the edge of the funnel.  ​   |  |  | | --- | --- | | *ANSWER:* | Tie one end of the rope onto the ankh, and then walk around the outer perimeter to form a rope bridge to the center. | | *POINTS:* | 1 | | *QUESTION TYPE:* | Essay | | *HAS VARIABLES:* | True | | *OTHER:* | smnm11.01.01.58 | | *DATE CREATED:* | 12/24/2015 12:56 PM | | *DATE MODIFIED:* | 12/24/2015 12:56 PM | |