

1. What is  $(2 + 0) \times (1 + 9)$ ?
2. Stephanie has 4 video games. Her brother has 16 video games. How many video games does Stephanie's brother have to give Stephanie so they have the same number of video games?
3. Sean and his friends love pizza. They buy 4 slices of pizza every day for 9 days. How many slices of pizza do they buy in total?
4. Cubie earns 3 points for taking out the trash. How many times does Cubie need to take out the trash to have at least 13 points?
5. Jonah has 3 more books than Amira. Arthur has 15 more books than Amira. How many more books does Arthur have than Jonah?
6. What is the one's digit (the last or rightmost digit) of  $993234234323 + 234340 + 2323434243$ ?
7. What is the remainder when  $1 \times 2 \times 3 \times 4$  is divided by 7?
8. A computer costs \$1000 and a phone costs \$500. Sean buys \$5000 dollars worth of phones and computers. How many computers does he buy if he buys 2 phones?
9. There is a  $9 \times 8$  checkerboard with only alternating white and black squares. How many of the squares are black?
10. Next year, you must choose from 2 math classes: number theory or algebra. You also have to choose from the 3 languages Chinese, French, or German. How many different ways can you select a math and language course?
11. There are 3 people waiting in line (Abby, Billy, and Carl). How many ways can these 3 people be ordered such that Abby is always ahead of Carl?
12. A woc is equivalent to 4 gips. A gip is equivalent to 5 tacs. Parth is 7 gips, 3 wocs, and 9 tacs tall. What is his height, in tacs?
13. Andy is playing on his calculator, but when attempting to divide by 3, he accidentally multiplies by 3 and gets 36. What is the positive difference between the answer Andy should have gotten, and the answer he got?
14. A triangle with an area of 5 and a square with an area of 7 overlaps with a certain area. If the area of the triangle outside the overlapping area is 3, then what is the area of the square outside the overlapping area?
15. A band teacher decides to give out cookies to the band members. The band consists only of drummers and trumpet players. All drummers get 2 cookies, and all trumpeters get 1 cookie. There are a total of 16 band members, and 23 cookies to give out (everybody will receive either 1 or 2 cookies). How many drummers are in the band?
16. In a pizza shop, there are 5 toppings that can be added: extra cheese, olives, peppers, pepperoni, and chicken. How many ways can toppings be chosen if you can't choose more than 2 toppings (you can choose to pick no toppings)?
17. 8 moles dig 4 holes in 2 minutes. How many moles are needed to dig 6 holes in 4 minutes?
18. A lily is in a pond, and each day the lily grows. More specifically, the area that the lily takes up in the pond doubles after every day. If it takes 32 days for the lily path to cover the entire lake, how many days would it take for it to cover half of the lake?
19. Sean orders a pizza with a diameter of 12 inches. However, Sean doesn't like the crust of the pizza, and decides to cut it off. Assume the difference between the start and end of the crust along a diameter is 1 inch. What is the area of the remaining pizza? Express your answer in terms of  $\pi$ .

20. 25% of a class is 20 years old,  $\frac{1}{3}$  of the people in the class are 21 years old, and the rest of the people in the class are 22 years old. Given that there are the least number of possible 22 year olds in the class to satisfy these conditions, how many ways can the teacher make a single group with one person from each grade?
21. This year, Alice, Bob, Carl, and David's ages are all two-digit distinct prime numbers less than 50. Ten years later, all of their ages will STILL be distinct prime numbers. What is the sum of their ages this year?
22. Before half-time, Tanush shoots 15 3-pointers and makes 1 of them. If after half-time, Tanush doesn't miss, how many more 3-pointers will he have to shoot to raise his shooting percentage to exactly 30%?
23. On a particular day, denote a happiness index  $h$  that is determined by the day of the week it is. That is, Monday  $\rightarrow h = 1$ , Tuesday  $\rightarrow h = 2$ ... Sunday  $\rightarrow h = 7$ . In the month of February on a non-leap-year, what is the maximum sum of happiness indexes?
24. A square and a circle both have an area of 10. The side length of the square is increased by 10%. By what percentage does the radius of the circle have to be increased for the circle to have the same percentage increase in area as the square?
25. On a  $3 \times 3 \times 3$  Rubik's cube, all the corners are taken off of the cube. What is the remaining surface area of the cube?