1. **C**. 1 MHz is 1000 kHz, which is 1000 Hz, so 1 MHz is 1,000,000 Hz. Thus, 1,420 MHz is 1,420,000,000 Hz.

2. **A**. Together, the agents decode words per minute. minutes.

3. **C.** The plane is moving at 250 miles per hour. If the UFO is going 56%, it is going at miles per hour.

4. **B.** The likelihood of inclement weather (rain OR snow OR hail) is

. Thus, the probability of sunny weather is

5. **A.** Matching up the 1:4 to the 4:6 ratio, we get that the ratio of the radius of the smallest circle to the radius of the biggest circle is 1:6.

6. **C.** Solve the inequality at . We get that x is 13, so on the 13th day the alien will be at the window.

7. **A.** Use order of operations: .

8. **E.** An irrational number cannot be written as the ratio of two integers. All of the numbers listed are rational.

9. **B.** There are three choices for number of heads, two choices for number of legs, and three choices for number of spots. To get the number of combinations that can be made, multiply the number of choices for each body part together. .

10. **D.** To convert to scientific notation, move the decimal until the number is between 0 and 10. Then write that number, multiplied by the quantity of ten raised to the number of times you moved the decimal.

11. **A.** The order is Sruthika, Grace, Jessica, Cherry, Tessa.

12. **D.** For every increase of 5°C, there is an increase of 9°F, starting from 0°C (32°F). So at 135°C, there have been increases of 5°C. That means an increase of °F, so since we started at 32°F the correct temperature is °F.

13. **C.** Slope = .

14. **B.** If 1 blep is 4 blops, 3 bleps are equal to 12 blops. If 3 blops are 8 blorps, 12 blops are equal to 32 blorps. Thus, 3 bleps are equal to 32 blorps. A Foos is 64 blorps, so Julia needs 6 bleps to pay for it.

15. **C.** I is an example of the commutative property because. II and III are both true, so there are two true statements.

16. **A.** Since carbon has 12 protons and there are 21 atoms of carbon in Berg, we calculate his total protons by multiplying the two, so 252 total protons. This is the same for 14 protons in silicon and 42 atoms in Blumtuck, so 588 total protons. .

17. **D.** July 19 is 5 days before July 24, this means that Tael’k traveled 5 days less than a full year. Since one full year is 365, this means that he vacationed for 360 days. We can then set up a ratio for how many years he traveled. . Solving for this results in 2 years. That’s a long a vacation!

18. **A.** Since ¼ was given to Duke, that mean Son Hala has ¾ left. To find out how much Bob ate out of the total solman, we multiply 2/3 and ¾. This results in 2/4 which can be simplified to ½. That’s half the solman. This means that the total given away or eaten so far is . We subtract this from 1 to find the remaining solman, or what Son Hala eats. .

19. **A.** Let’s break this problem into two parts. The first part we will solve is . Plugging it into the formula given results inThen we can solve the next part, Plugging this into the formula results in Then we can combine the two, .

20. **C.** After counting systematically (1 rectangle, 2 rectangle, 3 rectangle), you’ll find there are 21 unique rectangles!

21. **E.** You can test the points by plugging them in. The only point that works is point N, (3,7), as

22. **B.** The number of edges in the photo, or “lines”, is 10. The number of interior angles is 5 (you must also count the angles greater than ). 10 + 5 = 15

23. **B.** . . Simplifying this gives us 1.5 hrs.

24. **C.** An easy way to look for divisibility is by splitting the divisor up. 22 is so you should look for numbers that are divisible by 2 and 11. The only number like that in the lineup is 132.

25. **C.** These equations can be solved by elimination. Subtract the second equation from the first.

So y=2. Plugging this in to any equation results in x = 6. Then we can plug this into the expression given.

26. **B.** The pattern is that the previous number is doubled. Since it starts with 1, the 9th day will be , or 2048. You can also calculate this manually. 1, 2, 4, 8, 16, 32, 64, 128, and finally 256.

27. **B.** Divide the number by the lowest possible prime you can. So first a 2, which results in 222, then another 2, which gives 111, then a 3, to give 37.

28. **C.** First we must calculate the circumference of the pod using the equation .Plugging in the information given, we get 8.2 \* 3.14 = 25.748. Since we also need 2x the circumference for the ribbon, we must multiply the circumference by three to get the total, 77.244

29. **C.** 8 pairs of arms means 16 total arms, giving her 12 more arms than the average alien. 5% \* 12 = 60%. She gets 60% off, meaning she only has to pay 40% or .4\*360 = 144.

30. **B.** To find the volume of a cube you must cube the side. Volume = . .