1. yes

2. 10

3. 8

4. $260°$

5. If not this, then not that.

6. $\dfrac{\sqrt{3}}{2}$

7. 125

8. 21

9. 2

10. –34

11. $\dfrac{11}{137}$

12. $\dfrac{6}{25}$

13. 7

14. 36

15. $\dfrac{15}{2}$

16. 61

17. 4×3

18. 3

19. $\dfrac{4}{7}$

20. 4095

21. 4

22. 534

23. 360

24. 4.25

25. 18π

26. $2.26

27. 13

28. 11:43 am

29. 10

30. 5

31. 5

32. $\dfrac{3}{5}, -\dfrac{4}{7}$

33. 2.64%

34. 12

35. $y + 2x + 3$

36. 0

37. 32π

38. $\dfrac{2}{15}$

39. 8

40. $294\sqrt{3}$

1. 2 hours and 27 minutes minus 30 min for takeoff/landing. 1 hour 57 minutes to watch the movie. Plenty of time. Answer is YES.

2. $6 \cdot 8 \cdot 10 \cdot 12 = 5760$
   Second largest = 10

3. $f(2) = (2)^2 - 4(2) + 12$
   $= 4 - 8 + 12 = 8$

4. At 4:40pm the hour hand will be 2/3 of the way between 4 and 5 and the minute hand will be at the 8. From 8 clockwise to 4 is $240°$ plus the $20°$ past 4 makes a total of $260°$.

5. Inverse of If then is If not then not. So inverse of if this then that would be if not this then not that.

$Sin^2(\theta) + Cos^2(\theta) = 1$
$Sin^2(A) + Cos^2(A) = 1$
$\left(\dfrac{1}{2}\right)^2 + Cos^2(A) = 1$

6. $\dfrac{1}{4} + Cos^2(A) = 1$

$Cos^2(A) = \dfrac{3}{4}$

$Cos(A) = \dfrac{\sqrt{3}}{2}$

7. 5*5*5=125

8. $\dfrac{18+24}{2} = \dfrac{42}{2} = 21$

$3x + 4 = 5x$

9. $4 = 2x$
   $2 = x$

10. 10-9-8-7-6-5-4-3-2=10-44=-34

11. Probability is $\dfrac{11}{137}$

12. $.24 = \dfrac{24}{100} = \dfrac{6}{25}$

13. $.14(.50(100)) = 7$

$P = 4S$
$24 = 4S$
14. $6 = S$
$A = S^2 = 6^2 = 36$

Using Vieta's formulas,
15. $a^2b + ab^2 = ab(a+b)$
$= \dfrac{6}{2} \cdot \dfrac{5}{2} = \dfrac{15}{2}$

16. The prime numbers are 2, 3, 5, 7, 11, 13, 17, 19, 23, 29, 31, 37, 41, 43, 47, 53, 59, **61**, 67…so **61** is the smallest prime number greater than 60.

17. Only possible order is $(4 \times 2)(2 \times 3) = 4 \times 3$

18. $\left((81)^{\frac{1}{2}} \right)^{\frac{1}{2}} = \sqrt[4]{81} = 3$

19. Change to slope intercept form.

$2x + 7y = 4$
$7y = -2x + 4$
$y = -\dfrac{2}{7}x + \dfrac{4}{7}$

y-intercept $= \dfrac{4}{7}$

20. $2^{12} = 4096$, which includes 0 toppings, so the answer is 4095.

21. $3^3 + 3^3 + 3^3 = 3(3^3) = 3^4$
$x = 4$

22. If the tank is half full and it will take 267 gallons to fill up then a full tank is double that. 534 gallons.

23. There were 31 days in Jan, 28 in Feb, and 31 in March. 90 days total. 90*4=360. 360 flies.

24. If Joan is twice as fast as Jennie then she'll do the job in $\dfrac{17}{2} = 8.5$ hours and then Helen will do it in $\dfrac{8.5}{2} = 4.25$ hours.

25. The smallest circle would have the diameter between (3,3) and (-3,-3). The distance between the 2 points is $6\sqrt{2}$ so the radius is $3\sqrt{2}$ and the area is

$\pi r^2 = \pi \left(3\sqrt{2} \right)^2 = 18\pi$

26. $.05 + 4(.25) + .01 + 2(.1) + 1$
$= 2.26$

27. For every 5 pieces there are 4 almonds and 1 raisin. $\dfrac{65}{5} = 13$ So there are 13 sets of 5 pieces meaning there are 13 raisins.

28. 340 minutes is 5 hours and 40

   minutes. 5 hours before 5:23 pm

   is 12:23 pm and 40 minutes before

   that is 11:43 am.

29. The first 3 prime numbers 2, 3,

   and 5. So the sum is 2+3+5=10

30. $\dfrac{201}{7} = 28R5$, so remainder is 5

31. $\sqrt{\sqrt{\sqrt{390,625}}} = \sqrt{\sqrt{625}} = \sqrt{25} = 5$

32. $\begin{aligned} 0 &= 35x^2 - x - 12 \\ &= (5x-3)(7x+4) \\ \Rightarrow x &= \frac{3}{5}, -\frac{4}{7} \end{aligned}$

33. $\begin{aligned} 12\% \times 22\% &= .12 \times .22 \\ &= .0264 = 2.64\% \end{aligned}$

34. $\begin{aligned} 4096 &= 2^{12} \\ \log_2 4096 &= 12 \end{aligned}$

35. $\begin{aligned} \frac{1}{x} + \frac{2}{y} + \frac{3}{xy} &= \frac{y}{xy} + \frac{2x}{xy} + \frac{3}{xy} \\ &= \frac{y+2x+3}{xy}, \text{ so numerator} \end{aligned}$
   is $y + 2x + 3$

36. $|x| - |-x| = x - x = 0$

37. $\begin{aligned} A &= 256\pi = \pi r^2 \\ r &= 16 \\ C &= 2\pi r = 2\pi(16) = 32\pi \end{aligned}$

38. $\dfrac{1}{2} \times \dfrac{2}{3} \times \dfrac{3}{4} \times \dfrac{4}{5} \times \dfrac{6}{7} \times \dfrac{7}{8} \times \dfrac{8}{9} = \dfrac{6}{5 \times 9} = \dfrac{2}{15}$

39. $10! = 3628800$
   so the hundreds
   digit is 8

40. With apothem of $7\sqrt{3}$ then the

   side of the hexagon is 14. Thus

   $A = \dfrac{\left(3\sqrt{3}\right)\left(14^2\right)}{2} = 294\sqrt{3}$