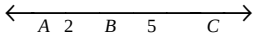
1. $2x-3=12$ you must add three to both sides
   $+3 \quad +3$
   $2x=15$
   $\frac{2x}{2}=\frac{15}{2} \quad x=7.5$

2. 2. $\overline{AB}$ is only 2 if $\overline{BC}$ is equal to 5, since $\overline{BC}$ is not equal to 5 then $\overline{AB}$ must not equal 2.



3. If the probability that it will rain is 0.7, then the probability that it will not rain must be 0.3. The total probability must be equal to 1.00, or 100%.

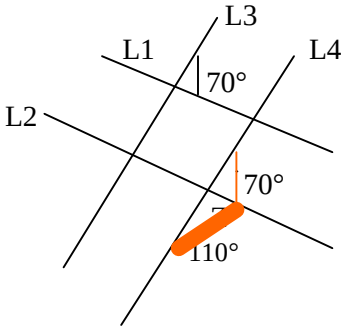
4. The answer is K, because the average is the sum of the items added together and divided by the total number of items. $8.95+(3*7.99)/4$.

5. If $4/.5=8$, and $8/.5=16$ and $16/.5=32$, then Sid started out with $32.00.

$-3a+(2b-a)$

6. $-3a+2b-a$
   $-4a-2b$

7. *Not to scale



Because we know that all vertical angles are equal we can conclude that the angle vertical From the given must be 70° A straight line as a degree of 180°, therefore we know that z must equal 180° - 70° = 110°.

8. $-(-4)^2-5(-4)+3$
   $-16+20+3$
   $4+3$
   7

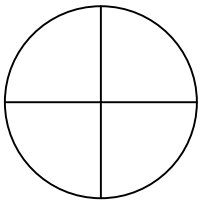
9. $x/6=4.5 \;=\; 6*x/6=4.5*6 \;=\; x=27$ * Remember the average is the sum of the items divided by the total number of items.

10. $7(a+b)=7a+7b$; distributive property

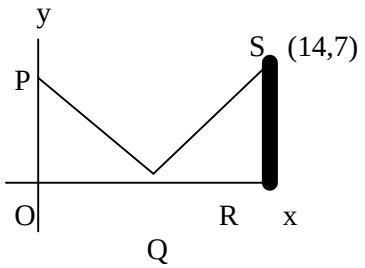
11. $10 per day is a fixed rate, next find the amount you receive per paper. So
$\$18-\$10=\$8$; $\$8/80=\$.10$. So, $\$10+\$.10x=$ *total amount*
$\$10+\$.10(80+20)=\$20$

12. $x*5/x \geq 1/3*x$, $5 \geq x/3$, $15 \geq x$; Any number larger than 15 would produce a number lower than 1/3.

13. A circle is 360°, is divided in to four parts then each part is 90°. $90^0*3=270^0+30^0=300^0$



14.



The answer cannot be F, G, J, because each of those points are on the x or y axis. Since the triangles have equal areas they have Equal sides, if $\overline{OP}$ is 7, then $\overline{OQ}$ could be 7 Then $\overline{QR}$ must be 7 so $\overline{OR}$ is 14, $(14,7)$

15. $(2-2)(-3+3)=0$

16. $m(n+p)$ is the total number of seats. Also expressed as $(mn)+(mp)$.

17. $.40x=80$, remember to change % to decimal and of means multiply!
$x=80/.40=200$

18. $\$.10(100)+\$.07(400)=\$38$, $.10 for the first 100 hrs and $.07 for 400 hrs.

19. To automatically add the interest or tax to the original price use the formula $(1+t)$.
$\$15.99*(1+.08)=\$17.27$. You would need 17 one dollar bills and .27 cents.

20. X = 3, $3^2=9$ so $1/(9-9)$ is equal to 1/0 which is undefined.

21. л = 3.14, $7/2$ = 3.5, and 3 : therefore $3 < \pi < 7/2$

22.
40cm * 2 = 80cm (bottom and top at 40cm)
26cm * 4 = 104cm (four sides at 26)
30cm * 2 = 60cm (two ends at 30)
244cm

23. $6x + 2x = 24$
$8x = 24 \quad x = 3;\ 3 * 6 = 18$ quarts of fruit juices and $3 * 2 = 6$ quarts of soda

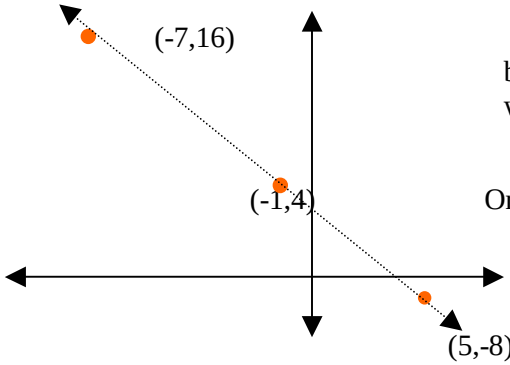
24. -3 and 4, because $-3^2 - (-3) = 12 \qquad 4^2 - 4 = 12$
$9 + 3 = 12 \qquad 16 - 4 = 12$

25. $(9-4)^2 = 25$ and $9 * 4 = 36$ therefore $9^2 + 4^2 = 97$

26. $(2a - 1)^3 = 9$
$6a - 3 = 9$
$+3 \quad +3$
$6a = 12$
$a = 2$

27. $(i^2)(i^2)=i^4 \quad (-1)(-1)=1 \quad 1+2(-1)= 1+-2= -1$

28.



(-7,16) is the only logical answer because none of the other points would form a straight line.

Or check: find the slope $\frac{y_2 - y_1}{x_2 - x_1}$

Slope= -2, then use a point to find y-intercept or b, $4 = -2(-1) + b$

b= 2, then use slope intercept to find which point works, $y = -2x + 2,16 = -2(-7) + 2,16 = 16$

29. Formula for radius of a circle if origin is center (0,0), $x^2 + y^2 = r^2$, the formula given is the formula for the radius if the origin is (2,-1) (you take the opposite of the given number). $(x-2)^2 + (y+1)^2 = 6$, so $r^2 = 6,\ r = \sqrt{6}$

30. The cosine of an acute angle of a triangle is the ratio of the (length of the side adjacent to the angle) / hypotenuse, which is s/t.

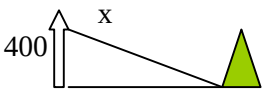
31. $\frac{-90a^4b^5}{6a^2b^4} = -15a^2b$; remember when the bases are the same and you are multiplying you add the exponents, when the bases are the same and you are dividing you subtract.

32. If two parallel lines are cut by a transversal, then the corresponding angles have the same measure $\left(\frac{4}{1}\right) = \left(\frac{6}{x}\right)$ $4x = 6,\ x = 6/4\ or\ 3/2$

33. If the area of the square is 36sq.units then segment OC, or the radius, is 6 sq. u.
$A = \pi r^2$ $A = 6^2\pi$ A=36л sq. units.

34. X is greater than negative -4 only because –4 is not included and less than or equal to 3 because 3 is included

35.
To solve this problem we use the Pythagorean theorem .



$a^2 + b^2 = c^2$
$X^2 = 300^2 + 400^2$,
$x^2 = 90{,}000 + 160{,}000$
$x^2 = 250{,}000$
$x^2 = \sqrt{250{,}000}$ or $x = 500$

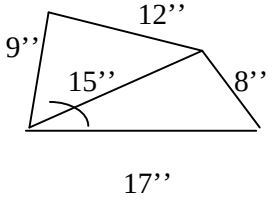
36. Y must be positive, it can be any positive real number not only 2. Because x is squared it will be positive and a negative denominator would make the whole radical negative.

37. The answer is 15, 75/15 = 5, and 90/15 = 6
it does not divide, 18/15 = 1.2 and 10/15 = .667 1+5=6

38. The slope would equal zero, because y=0, there is no y intercept. Remember:
$\frac{change\ in\ y}{change\ in\ x}$ if you divide 0/x, then you get 0.

39. In the formula y=mx + b, m equals slope. m =4 would be the highest because even though E seems higher m = 10 when solved it would be divided by 5 thus equaling 2.

40.

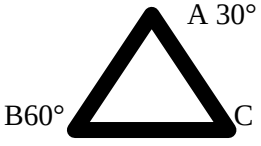


sin is side opposite the angle over the hyp. And cos is the side adjacent to the angle over the hyp.
(12/15)(15/17) + (8/17)(9/15) = 180/255 + 72/255=252/255
sina * cosb + sinb * cosa = sin(a + b)

41. $\left(\frac{7m}{2}\right)$ m=the minutes/mile, then multiply 7 times m and divide by 2 to get the total minutes.

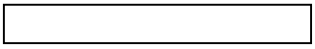
42. Because any number squared may not be and even number, but when that number is squared and multiplied by an even number then it is even. Example: $3^2 = 9, 9 \times 4 = 36$

43.



Triangle ABC is a 30-60-90 triangle, the
Since the height (line AC) lies opposite the 60° AC = ½ hyp$\sqrt{3}$ = ½(12)$\sqrt{3}$ = 6$\sqrt{3}$. And since BC the base lies opposite the 30° angle, BC=1/2hyp= ½(12) = 6, therefore A = ½(Base)(height)
A = ½ (6)(6$\sqrt{3}$), or A = 18$\sqrt{3}$

44. x/y, because AEB, and AED are isosceles triangles and therefore they have two equal sides and the sides would be AB and AE ,which would equal x, and also DC and DE, which would equal y.

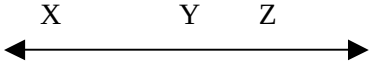
45.  X $a = lw$, the area of this rectangle is (3w)(w). Then when 3w doubled it then becomes (6w)(2w).
the area of the new rectangle is $(6w)^2(2w)^2 = \sqrt{36w}$, or 12w
the area of the old rectangle is $(3w)^2(w)^2 = \sqrt{9w}$, or 3w, the ratio between the two is 12/3 or 4 times bigger.

46. The answer is 6, because all of the current numbers could be divisible by 12.

47. Distance formula from point A to point B is $\sqrt{[(x - x)^2 + (y - y)^2]}$
Therefore, $\sqrt{[(50-20)^2 + (25-40)^2]}$

48. Answer is 40 tan 42°, because the tangent of an angle is $\tan = \frac{opposite}{adjacent}$
It would not be cos because we don't know the length of the hyp, would not be sec because it deals with circles, and would not be sin because we don't know the angle over the hyp.

49. Area of a parallelogram $= bh$, the answer is $2 \times 4 = 8$

50.


If X and Y form a complete line and Y and Z form a complete line and all points equal one meter then there could be only 8 points, (5+3), but could be only two points, X to Y is one point and Y to Z is two points, therefore the answer is 2 and 8 only.

51. Area of a triangle $= \frac{1}{2}bh$, therefore the base of the triangle is 6 points which lies right above the x axis, and the height is 15 points which follows the y axis.
$a = 1/2(6 \times 15) = 45$

52. b>0 cannot be true because it is the only number that could be negative even when raised to the third power. Anything square is positive.

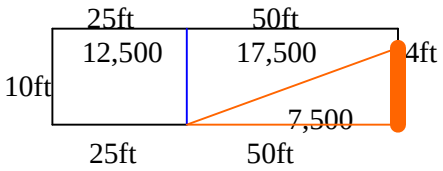
53. $A^{999}n$ if a equaled one then $a^{999} = 1$ which would be the 1000^{th} term.

54. From the direction of the line we know the slope will be positive, because it is moving left to right and we also know that they will not have the same y-intercept, therefore the only answer possible is y = 2x + 2

55. $\sin x = \frac{opposite}{hypotenuse}$ $\sin x = \frac{7}{25}$ $\tan x = \frac{opposite}{adjacent}$ $\tan x = \frac{7}{?}$, we don't know the adjacent angle, but we know that the opposite is 7, so A is only possible.

56. 3,000 + 250x, 3,000 gallons per day is a normal fixed amount plus whatever extra is sold because of the discount which is 250 times the amount raised because of the decrease in price.

57. The chances Terry will be a winner are 1/11, because there are eleven different chances to draw the same tens digit in 100, and there is a one in 11 chance to draw the right number.

58. 

First find the volume of the orange area: H=50 and B=area of the triangle=1/2BH or 50*6*1/2=150. The volume is V = (150)(50)=7,500
Then find the left rectangle volume 25*50*10=12,500, volume of a rectangle=l*w*h
Then find the right rectangle volume 50*50*10 =25,000
Then subtract the orange area 25,000 – 7,500 = 17,500
Then add the sides together to get the total volume of water needed. 12,500 + 17,500 = 30,000

59. We know that they have the same slope, because that is true with all parallel lines. The length between the two parallel lines is 2, to find the B or the y-intercept you multiply 2 by √2 because the line is a diagonal of a square and is equal to S√2 or 2√2.

60. X = real number and X – 6 = real number, then x(x-6) would be the equation, and if x = 3, just randomly chosen because it will divide into 6, then 3(3-6) would equal –9 would be the smallest possible number.