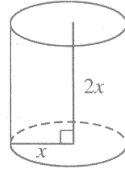


15. **Choice C** is correct From the graph at age 6 Elina was 45 inches tall. At age 12 she is 60 inches tall. This means she grew 15 inches. We want to know her percentage increase which means we need to divide her increase by something. The words in the problem tell us what that should be. "...than her height at age 6?" lets us know we need to divide by her height at age 6. This makes the problem $15/45$ or .3333 on the calculator. But we want a percentage which means we need to multiply the number by 100 making it 33.33.

16. **Choice E** is correct Lets put in our own value of x and find some wrong answers. Let x be 2 the cylinder has radius 2 and height 4. The volume is area of the Base * height and the base is a circle so the formula is $v = \pi r^2 h = 3 * 2^2 * 4 = 48$ Which of the answers is 16?

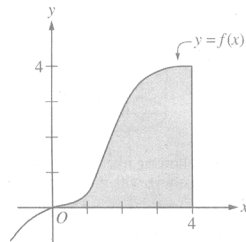


- A) cylinder with $r = 4$ and $h = 2$ $3 * 4^2 * 2 = 96$
 B) cylinder with $r = 4\pi$ and $h = 2$ $3 * (4 * 3)^2 * 2 = 864$
 C) cube with edge 4 $4^3 = 64$
 D) cube with edge 4π $(4 * 3)^3 = 1728$
 E) solid 2 by 4 by 2π $2 * 4 * 2 * 3 = 48$
 The answer is E

17. **Choice B** is correct Put in my own numbers. $a = 2, x + 1 = 5$ so $2 + 2(5) = s = 12$ We should look for 5.

- A) $\frac{12}{4} = 3$ B) $\frac{12-2}{2} = 5$ C) $\frac{12+2}{2} = 7$
 D) $\frac{12}{2} - 2 = 4$ E) $\frac{12}{2} + 2 = 8$
 Only B remains

18. **Choice D** is correct $a \leq 4$ says the x value is less than 4 which is true. Cross off any answer without I. B is wrong.



- $b \leq a$ says the y value is less than the x value. Draw the line from $(0, 0)$ to $(4, 4)$ which is the line $y = x$. Are any shaded pint above this line? Yes so II is false. Cross off any answers that have II. C and E are wrong which leaves only A or D.
 $b \leq f(a)$ says that the y value of the point is below the y value on the curve. This is true. Cross off A. Only D remains.

19. **Choice C** is correct Put in my own numbers. $n = 12$ This bottle will be accepted.

- A) $|12 - 12| = |0| = 0 = \frac{1}{8}$ WRONG
 B) $|12 + 12| = |24| = 24 = \frac{1}{8}$ WRONG
 C) $|12 - 12| = |0| = 0 < \frac{1}{8}$ Possible
 D) $|12 + 12| = |24| = 24 < \frac{1}{8}$ WRONG
 E) $|12 - 12| = |0| = 0 > \frac{1}{8}$ WRONG

Only C remains

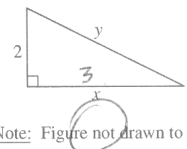
20. **Choice E** is correct The first few numbers are $-25, -24, -23$ and when I add these we get a big negative number. To get a positive answer we need to include positive numbers to balance the negative ones and then more. Just to get 0 as the sum we need positive numbers from 1 to 25 to match the negative ones from -1 to -25 . This is 25 positive numbers and 25 negative numbers which is 50 numbers. But don't forget 0. It is a number in our list so we have a total of 51 numbers to get a sum of 0. The next number in the list is 26 so our sum is $0 + 26$ or 26. Just what we want., 52 numbers.

Section 6 – 8 questions – first third - easy

1. **Choice E** is correct What **can** it equal. Just put in their numbers. Try easy ones first.

- C) $1 + \frac{2}{1} = 5 + \frac{2}{5}$ or $3 = 5$ plus something. WRONG
 E) $5 + \frac{2}{5} = 5 + \frac{2}{5}$ The same! The answer is E

2. **Choice A** is correct.. Pythagorean Theorem.



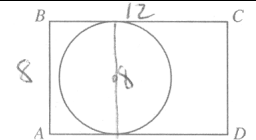
$2^2 + x^2 = 2^2 + 3^2 = 4 + 9 = 13$

3. **Choice D** is correct. To show something is not true we need to make sure the conclusion is false. In this case we need to find a number that is NOT divisible by 4. In their answer list only 18 is NOT divisible by 4.

Note: Figure not drawn to scale.

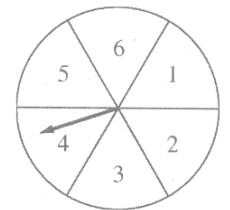
Section 6 – 8 questions – second third - medium

4. **Choice A** is correct. The diameter of the circle is the shorter of the two lengths for the rectangle since it needs to fit inside. So the diameter is 8 and the radius is 4.



$\pi 4^2 = 16\pi$

5. **Choice A** is correct. To get a fraction greater than 1 the numerator must be larger than the denominator. The answer will be successful ways / possible ways. There are 36 ways to pick the two numbers which is why all the denominators are 36. How many successful ways are there? If we get a 6 for the denominator then there are no numbers larger than 6 to get. If we get a 5 there is only one success, the number 6. Continue the logic to 4 (2 ways), 3 (3 ways), 2 (4 ways) and 1 (5 ways) which adds up to 15 successful ways.



6. **Choice D** is correct. The language w is directly proportional to x translates directly into the equation $w = kx$ where k , for that problem, is always the same. We need to see if we can make a nice multiplication problem for the number pairs in the tables.

- A) Multiply 1 by 3 to get 3. The multiplier is 3. 2 times 3 is 4? No so A is wrong.
 D) 7 times 3 is 21 so its multiplier is 3. 8 times 3 is 24? Yes. 9 times 3 is 27 Yes. This one works.