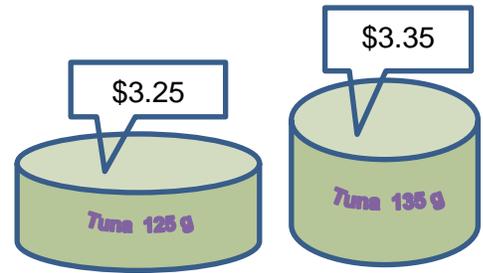


**From the class work 17 (see the file uploaded as a class work or class work handout)**

1. A company packs tuna into 2 different type of cans, 125 g and 135 g. 125 g can costs \$3.25 and 135 g can costs \$3.35. In which can tuna is less expensive?
2. John and Robert played basketball. John made 20 throws and hit 15 times. Robert made 27 throws and hit 18 times. Who did better?
3. The ratio of boys to girls in 6<sup>th</sup> grade is  $\frac{9}{11}$ . The ratio of girls to boys in 7<sup>th</sup> grade is  $\frac{31}{29}$ . There are 100 and 120 students in 6<sup>th</sup> and 7<sup>th</sup> grades correspondingly, what is a ratio of boys to girls at the dance for 6 and 7 grade students, if all students came to the dance.
4. Evaluate:



$$\frac{(2.3 + 5.8) \cdot 3\frac{5}{7}}{(4.9 - 2.3) : \frac{7}{9}} \quad (\text{answer is } 9);$$

$$\frac{\frac{1}{8} : \frac{5}{16} + 2.25 \cdot 0.8}{(2\frac{1}{48} - 1\frac{55}{72}) : 3\frac{1}{12}} + 3\frac{3}{5} \quad (\text{answer is } 30)$$

5. Triangle ABC is an isosceles triangle.  $|AB|=|BC|$ .

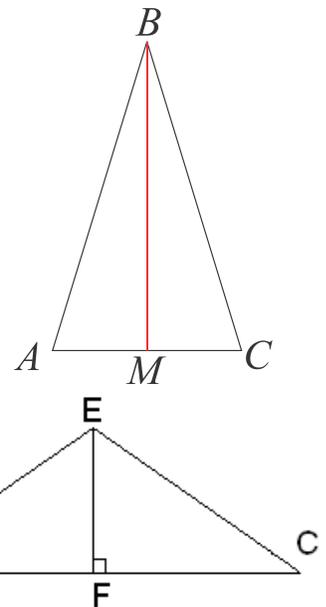
$\angle BAC + \angle BCA = 52^\circ$  What is the measure of the angle  $\angle BAC$ ? Explain why. Hint: use the following theorem from classwork:

**Theorem.** In isosceles triangle the bisector passed to the base (in isosceles triangle the base is the side different from two equal sides) is a median and an altitude as well.

Let the triangle  $\triangle ABC$  be an isosceles triangle, such that  $AB = BC$ , and  $BM$  is a bisector. We need to prove that  $BM$  is a median and an altitude, which means that  $AM = MC$  and angle  $\angle BMC$  is a right angle.

$BM$  is a bisector, so  $\angle ABM$  and  $\angle MBC$ , the triangle  $\triangle ABM$  is an isosceles triangle, so  $AB = BC$  and the segment  $MB$  is common side for triangles  $\triangle ABM$  and  $\triangle MBC$ . Based on the Side-Angle-Side criteria, the triangles  $\triangle ABM$  and  $\triangle MBC$  are congruent. Therefore,  $AM = MC$  ( $BM$  is a median), angles  $\angle A$  and  $\angle C$  are congruent. (Isosceles triangle has equal angles adjacent to the base).

$\angle A + \angle B + \angle C = 180^\circ = 2\angle A + \angle B \Rightarrow 90^\circ = \angle A + \frac{1}{2}\angle B$  but for the triangle  $ABM$  (as well as for  $MBC$ ),  $\angle A + \frac{1}{2}\angle B + \angle BMA = 180^\circ$ , therefore  $\angle BMA = 90^\circ$  and  $BM$  is also an altitude.



6. In the triangle DEC,  $|DE| = |EC|$ , what is the measure of the angle  $\angle FEC$ , if the angle  $\angle DEC = 104^\circ$  and  $\angle DEF$  is a right angle. Explain why.

7. Where on the number line below should be placed number  $c$  so that  $\frac{a}{b} = \frac{c}{d}$

