



Problem of the Week

Problem A and Solution

Creating an Art Kit

Problem

A teacher at Sioux Mountain School wants to purchase items for art kits to be used in their classroom. Below is a list of the items in one kit, along with the price for each item. All prices include tax.

Pencil crayons	\$1.75
Sketch book	\$2.25
Watercolour paints	\$3.15
Glue	\$1.10
Scissors	\$1.70

If the teacher has a budget of \$80 for art supplies, then estimate how many kits they can make. Justify your answer.

Solution

One way to estimate how much each kit will cost is to round the price of each item to the nearest dollar:

Pencil crayons	\$2
Sketch book	\$2
Watercolour paints	\$3
Glue	\$1
Scissors	\$2

Thus, each art kit will cost approximately $\$2 + \$2 + \$3 + \$1 + \$2 = \10 .

With a budget of \$80 and since $80 \div 10 = 8$, we estimate they can make 8 art kits.



Teacher's Notes

When we use estimation we need to realize that our estimated result is an approximation and not an absolute guarantee of a correct answer. We should always consider a margin of error for our estimations.

For example, in this problem if you calculate the actual cost of an art kit, it comes to:

$$1.75 + 2.25 + 3.15 + 1.10 + 1.70 = \$9.95$$

In this case, our estimation gave us the actual number of art kits that the teacher can purchase. However, if the cost of the paints was actually \$3.25, instead of \$3.15, then the actual cost of an art kit would be \$10.05, but our estimate would still be \$10. This is a reasonable estimation, but the actual cost means the teacher does not have the budget for 8 kits, but rather for only 7 kits.

Since we used estimation to predict the number of kits that could be purchased, it would be more accurate to give an answer of 8 kits, plus or minus 1 kit. This factors in the margin of error.