

Name: _____ Date: _____

Maxed Out!

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Equations

Sam makes t-shirts that he sells at craft fairs. He makes silk screened t-shirts and handpainted t-shirts. He wants to make 20 t-shirts for an upcoming fair. He makes \$5 for each silk screened shirt and \$ 10 for each handpainted shirt.

1. Find 5 possible combinations of shirts that does not exceed 20. How many different combinations are there?

Example: 1 silk screened shirt/19 handpainted shirts

2. Using the profit amounts above, find the combination that yields the most profit for Sam.

Thinking Cap

If Sam lowers his price on each handpainted shirt so that he makes only \$8, how many more handpainted shirts would he have to sell to make up the difference?

Maxed Out!

Equations

Objective: Use the calculator to evaluate expressions

NCTM Standards: Mathematics as Problem Solving; Computation and Estimation; Algebra

Using this Activity:

Remind students of the procedure for setting the F1 and F2 keys to simplify finding maximum profit by evaluating the expressions.

To set the F1 and F2 keys:

Start with a 0 in the display: $\overset{\text{ENG}}{\text{X}}$ $\overset{\text{ΣX}}{\text{5}}$ SHIFT $\overset{\text{SET1}}{\text{F1}}$

Use a similar procedure to set F2 for the handpainted shirts at \$ 10 each.

This problem can be made slightly more difficult by limiting the number of handpainted shirts and silk screened shirts he must make, assuming the silk screened shirts sell better or by adding in a third type of shirt. Inequality restrictions can also be added and the problem becomes a linear programming problem appropriate for Algebra II and the graphing calculator.

Answers:

1 . Possibilities:	S = silk screened	H = handpainted	
0S; 20H*	1S; 19H	2S; 18H	3S; 17H
4 S; 16H	5S; 15H	6S; 14H	7S; 13H
8S; 12H	9S; 11H	10S; 10H	11S; 9H
12S;8H	13 S; 7H	14 S; 6H	15 S; 5H
16S; 4H	17 S; 3H	18 S; 2H	19 S; 1H
20S; 0H			

*Largest profit at \$200

2. Answers will vary depending on which of the possible combinations the student chooses.