Appetizer
Taken from *Soduko Collection*, Volume 1, Number 1

Just Like Money in the Bank

Adapted from *Contemporary Mathematics in Context*, Course 1, Lesson 3, Investigation 1, p. 455.
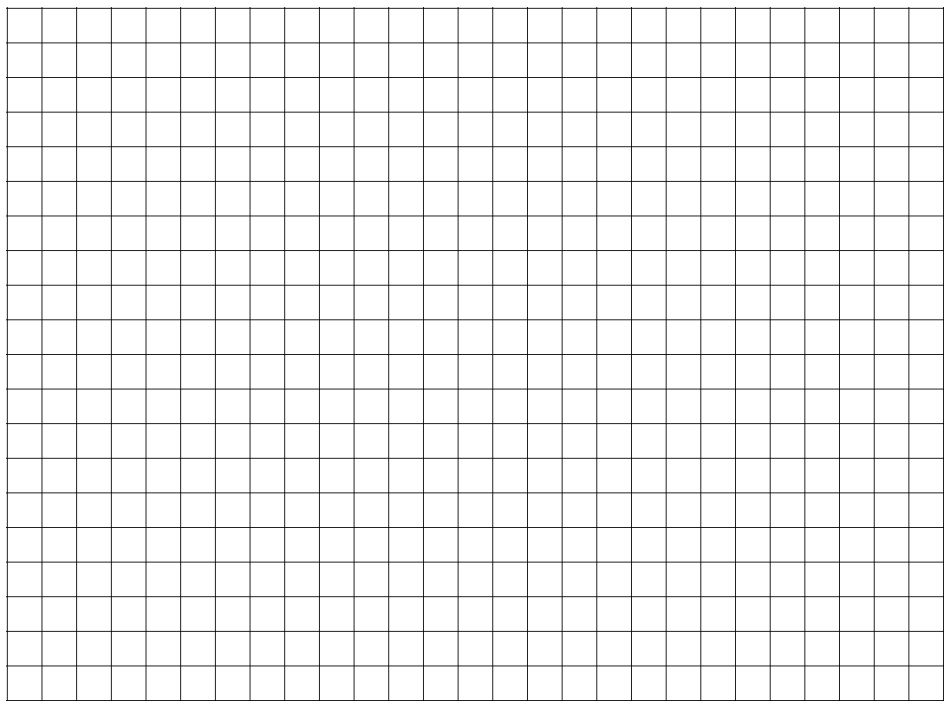
Amidonia Teen Wins $20,000 Lottery Prize

An Amidonia teenager has just won $20,000 from a PowerPrism lottery ticket that she got as a birthday gift from her uncle. In a new lottery payoff scheme, the teen (whose name has been withheld) has two payoff choices: One option is to receive $1,000 payments each year for the next twenty years. In the other plan the lottery will invest $10,000 in a special savings account that will earn 8% interest, compounded annually, for 10 years. At the end of that time she can withdraw the balance of the account.
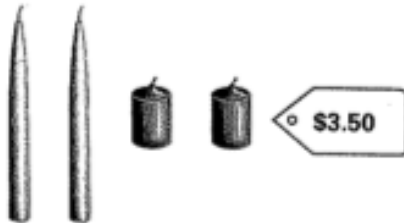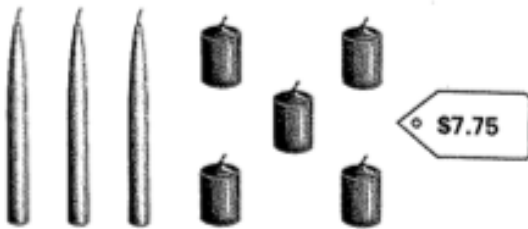
Adapted from *Visual Explanations: images and quantities, evidence and narrative* by Edward Tufte, p. 44

What do you estimate the damage index to be at 24 degrees?

Temperature °F	Damage index
53°	11
57°	4
58°	4
63°	2
66°	0
67°	0
67°	0
67°	0
68°	0
69°	0
70°	4
70°	0
70°	4
70°	0
72°	0
73°	0
75°	0
75°	4
76°	0
76°	0
78°	0
79°	0
80°	?
81°	0

Adapted from *Mathematics in Context*, Year 1, Comparing Quantities, p. 35-36

$ 96

$ 99

$7.75

$3.50
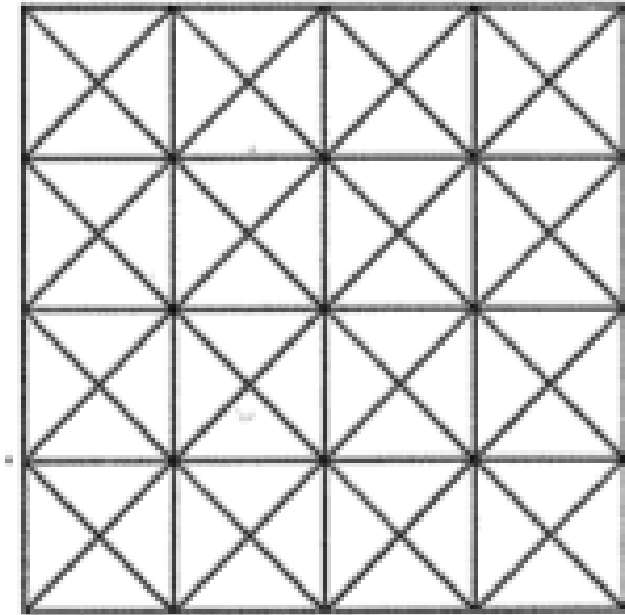
Adapted from Connected Mathematics Project 2, Grade 8, Samples and Populations

**Data From 100 Bags of Plain M&M's® Candies (pre-March 2004)**

Bag	Green	Yellow	Orange	Blue	Brown	Red	Total
1	3	10	9	5	10	18	55
2	5	12	4	6	19	11	57
3	7	10	9	4	16	12	58
4	4	14	2	1	14	19	56
5	12	7	8	7	14	13	61
6	10	9	6	5	15	8	55
7	11	11	6	6	12	12	58
8	8	15	5	3	16	10	57
9	2	11	4	4	24	12	57
10	5	7	4	1	26	13	56
11	6	13	4	4	15	18	60
12	5	8	4	2	23	16	58
13	9	13	4	4	14	11	55
14	9	10	5	5	14	14	57
15	5	19	5	2	13	14	58
16	3	15	5	2	19	11	55
17	3	10	4	3	23	14	57
18	6	7	5	5	15	22	60
19	5	7	3	4	21	14	54
20	8	7	8	2	20	16	61
21.	10	11	7	7	8	14	57
22	7	10	3	5	20	12	57
23	3	8	6	3	25	10	55
24	6	11	9	3	10	17	56
25	10	12	1	2	15	17	57
26	4	12	4	7	14	16	57
27	6	9	6	7	15	13	56
28	5	11	6	7	17	7	53
29	1	10	6	5	22	14	58
30	10	4	8	0	26	9	57
31	4	14	6	4	18	12	58
32	6	18	2	4	19	14	58
33	6	7	8	4	20	11	56
34	12	11	6	4	11	11	55
35	5	10	6	2	12	16	51
36	8	9	4	4	16	17	58
37	2	12	2	6	11	21	54
38	5	7	3	4	21	19	59
39	8	7	8	2	20	16	61
40	10	11	7	7	8	14	57
41	7	10	3	5	20	12	57
42	3	8	6	3	23	10	50
43	6	11	9	3	10	17	56
44	10	12	1	2	15	17	57
45	5	13	2	4	22	11	57
46	6	10	9	5	14	13	57
47	6	16	7	3	16	9	57
48	6	10	4	5	23	10	58
49	10	7	2	6	19	9	53
50	4	12	8	6	10	15	55

| Bag	Green	Yellow	Orange	Blue	Brown	Red	Total
51	9	9	6	6	17	10	57
52	4	13	4	6	17	13	57
53	6	12	3	8	13	12	54
54	11	8	8	12	9	8	56
55	1	16	7	3	22	10	59
56	6	11	6	4	19	11	57
57	7	7	7	3	10	21	55
58	7	2	8	10	15	13	55
59	6	10	6	7	12	15	56
60	6	16	7	3	16	9	57
61	6	10	4	5	23	10	58
62	10	7	2	6	19	9	53
63	4	12	8	6	10	15	55
64	9	12	8	6	8	15	58
65	10	6	5	4	12	16	53
66	4	11	3	2	21	15	56
67	6	15	4	8	10	10	53
68	6	8	7	1	19	14	55
69	6	8	8	6	10	16	54
70	9	11	7	4	15	10	56
71	6	9	8	2	19	14	58
72	3	10	9	5	10	18	55
73	5	12	4	6	19	11	57
74	7	10	9	4	16	12	58
75	4	14	2	1	16	19	56
76	1	8	10	1	22	14	56
77	5	15	4	9	11	11	57
78	3	11	6	3	24	10	57
79	10	9	4	1	23	10	57
80	5	10	7	1	21	13	57
81	6	14	7	7	14	5	53
82	9	11	2	6	13	16	57
83	7	7	9	0	13	20	56
84	8	10	4	5	13	10	50
85	4	11	2	1	24	15	57
86	4	12	6	3	21	12	58
87	5	8	7	4	20	13	57
88	7	11	7	7	13	10	55
89	9	11	4	2	12	18	56
90	4	15	8	4	16	10	57
91	7	11	6	4	18	11	58
92	5	8	8	3	20	12	56
93	7	3	2	6	26	11	55
94	9	6	3	1	28	12	59
95	12	11	9	2	18	5	58
96	9	11	3	3	17	12	55
97	5	12	6	5	17	13	58
98	4	11	9	3	21	10	58
99	11	12	5	3	17	9	57
100	6	16	6	6	16	4	54

20 Match each equation with the correct graph. All graphs are drawn using the same scales on the axes. Be prepared to explain how you can do this without using your calculator.

a. $y = -x^2 + 4$ b. $y = -x^2 + 4x$ c. $y = -x^2 + 4x - 4$
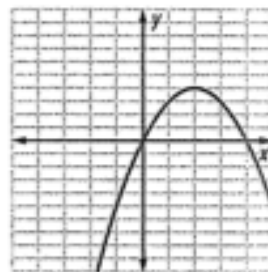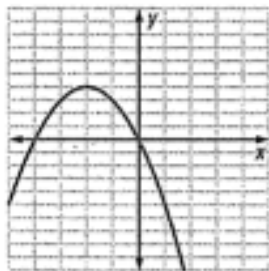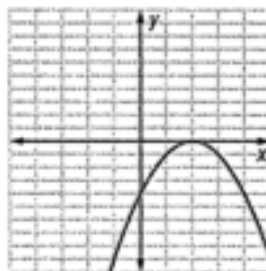
d. $y = x^2 + 4$ e. $y = -x^2 - 4x$

I
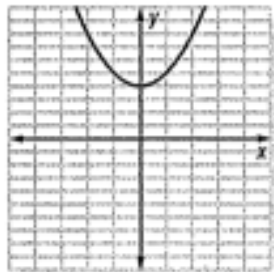
II
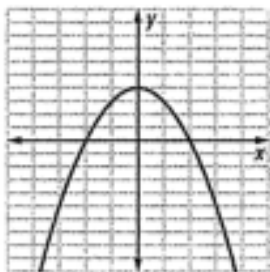
III

IV

V

1-2-3-4 Puzzle

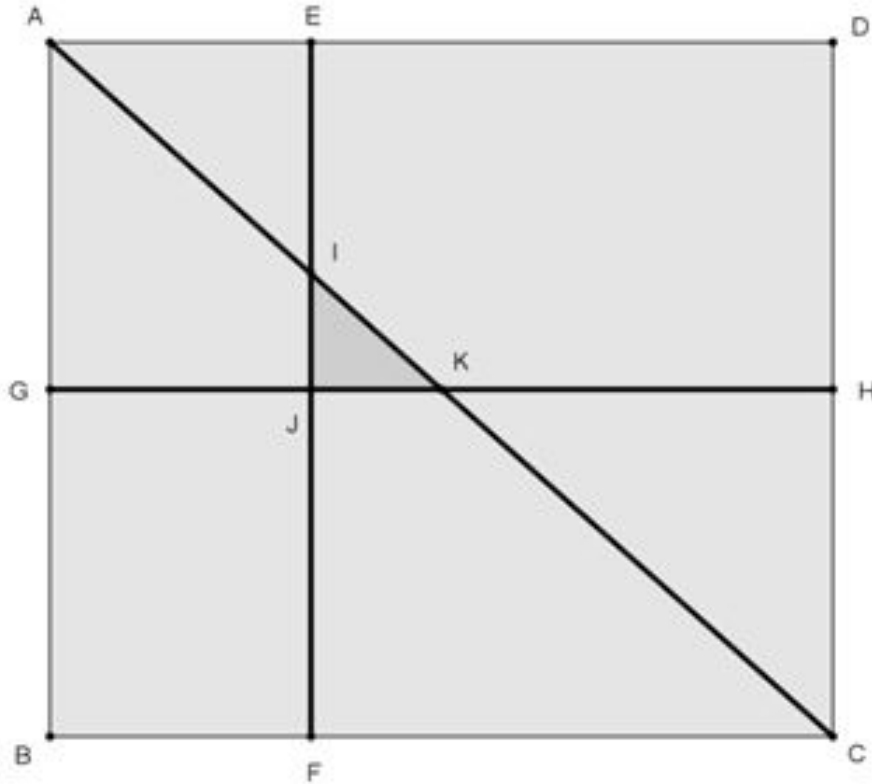Adapted from Interactive Mathematics Program, Year 2, Homework 5, p. 17-18

Use the digits 1, 2, 3, and 4 exactly once to create as many expressions as you can that equal each of the integers from -20 to 20.

Adapted from *Mathematics Teaching in the Middle School*, Palette of Problems, Feb 2014

The smaller of the two squares in the figure below has a perimeter of 8 centimeters. The larger of the two squares has an area of 25 square centimeters. What is the distance from point A to point B?
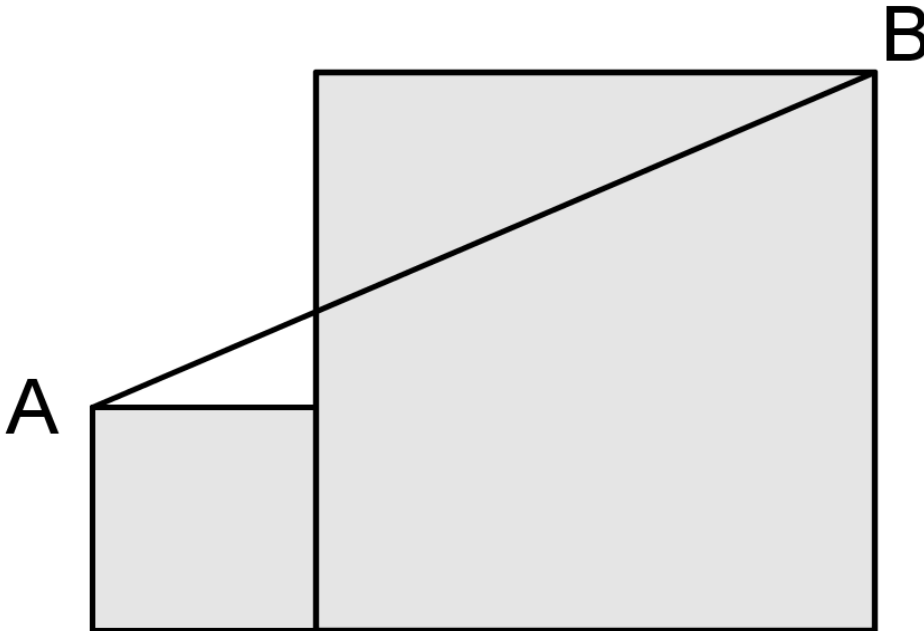
In rectangle ABCE, lines EF and AB are parallel and lines GH and AD are parallel. Line AC is a diagonal. Find the area of ABCD if the ratio AG:GB = 1, DE:EA = 2, and the area of triangle IJK is equal to 1 square unit.