Part I

Answer all 24 questions in this part. Each correct answer will receive 2 credits. No partial credit will be allowed. Utilize the information provided for each question to determine your answer. Note that diagrams are not necessarily drawn to scale. For each statement or question, choose the word or expression that, of those given, best completes the statement or answers the question. Record your answers on your separate answer sheet. [48]

Use this space for computations.

1 If $f(x) = 2(3^x) + 1$, what is the value of $f(2)$?

(1) 13

(2) 19

(3) 37

(4) 54

2 A high school sponsored a badminton tournament. After each round, one-half of the players were eliminated. If there were 64 players at the start of the tournament, which equation models the number of players left after 3 rounds?

(1) $y = 64(1 - .5)^3$

(2) $y = 64(1 + .5)^3$

(3) $y = 64(1 - .3)^{0.5}$

(4) $y = 64(1 + .3)^{0.5}$

3 Given $7x + 2 \geq 58$, which number is *not* in the solution set?

(1) 6

(2) 8

(3) 10

(4) 12

4 Which table could represent a function?

(1)

x	f(x)
1	4
2	2
3	4
2	6

(2)

x	g(x)
1	2
2	4
3	6
4	2

(3)

x	h(x)
2	6
0	4
1	6
2	2

(4)

x	k(x)
2	2
3	2
4	6
3	6

Use this space for computations.

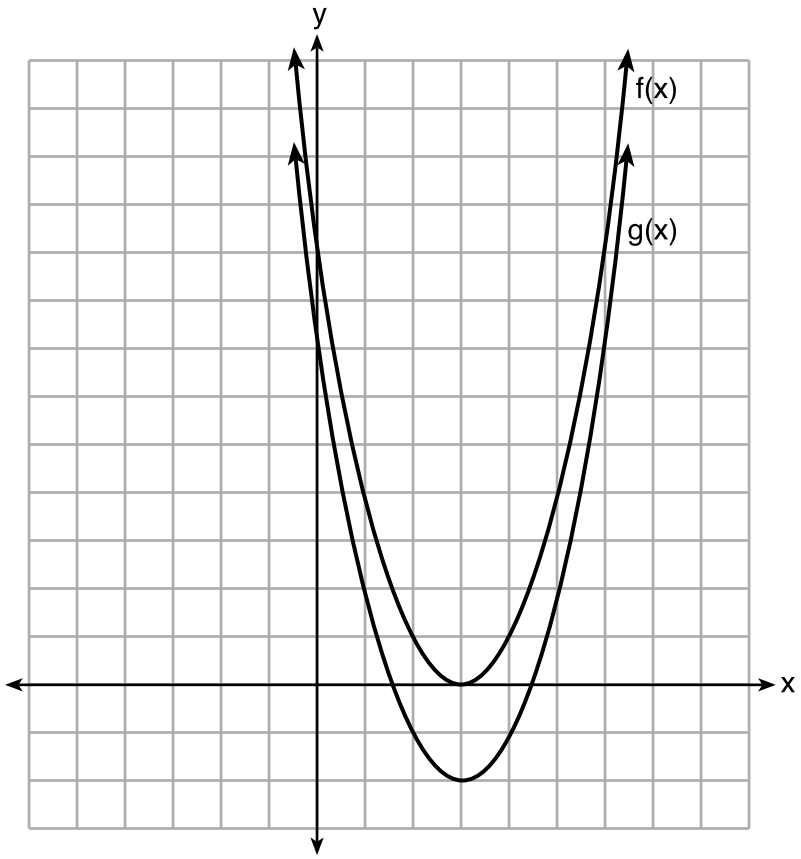
5 Which value of x makes $\frac{x-3}{4}+\frac{2}{3}=\frac{17}{12}$ true?

(1) 8
(2) 6
(3) 0
(4) 4

6 Which expression is equivalent to $18x^2 - 50$?

(1) $2(3x + 5)^2$
(2) $2(3x - 5)^2$
(3) $2(3x - 5)(3x + 5)$
(4) $2(3x - 25)(3x + 25)$

7 The functions $f(x) = x^2 - 6x + 9$ and $g(x) = f(x) + k$ are graphed below.



Which value of k would result in the graph of $g(x)$?

(1) 0
(2) 2
(3) -3
(4) -2

Use this space for computations.

8 The shaded boxes in the figures below represent a sequence.

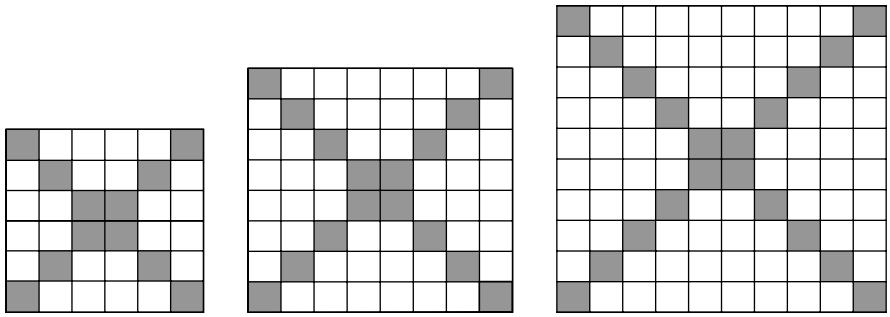


Figure 1 Figure 2 Figure 3

If figure 1 represents the first term and this pattern continues, how many shaded blocks will be in figure 35?

(1) 55 (3) 420

(2) 148 (4) 805

9 The zeros of the function $f(x) = x^3 - 9x^2$ are

(1) 9, only (3) 0 and 3, only

(2) 0 and 9 (4) -3, 0, and 3

10 A middle school conducted a survey of students to determine if they spent more of their time playing games or watching videos on their tablets. The results are shown in the table below.

	Playing Games	Watching Videos	Total
Boys	138	46	184
Girls	54	142	196
Total	192	188	380

Of the students who spent more time playing games on their tablets, approximately what percent were boys?

(1) 41 (3) 72

(2) 56 (4) 75