

PROBLEM SET 17: MIXED BAG

Easy

1



If $x = 14 - y$, what is $3x$ when $y = 11$?

- A) -9
- B) -3
- C) 3
- D) 9

2



At Rose's Flower Shop, the cost of purchasing a bundle of 8 ferns is \$57. The cost of each fern, when purchased separately, is \$9. How much money would be saved by purchasing a bundle of 8 ferns, rather than purchasing 8 ferns separately?

- A) 12
- B) 13
- C) 14
- D) 15

3

In isosceles triangle ABC , one angle measures 55° and another angle measures 70° . Which one of the following is the measure of the third angle?

- A) 40
- B) 55
- C) 70
- D) It cannot be determined from the information given.

Medium

4

If $24b^2 - 4x = 32$, what is the value of $6b^2 - x$?

- A) 6
- B) 8
- C) 12
- D) 16

5

Sasha has a collection of 60 vinyl records, some of which are classic jazz and the rest of which are hip hop. If Sasha has $\frac{1}{4}$ as many classic jazz records as she has hip hop records, how many classic jazz records does she have?

- A) 12
- B) 15
- C) 45
- D) 48

6



If p is an integer such that $-5 < p < 5$ and $q = 3p - p^3$, what is the least possible value of q ?

- A) -76
- B) -52
- C) -4
- D) 0

7

Rennae needs to purchase at least 20 poster boards for a group art project. The poster boards come in a small size, which costs \$30 per board, and a large size, which costs \$50 per board. Her allowance for purchasing poster boards is no more than \$860 in total. She must purchase at least 5 small poster boards and 4 large poster boards. If a represents the number of small poster boards and b represents the number of large poster boards, which of the following system of inequalities represents the restrictions described?

- A) $30a + 50b \leq 860$
 $a + b \leq 20$
 $a \leq 5$
 $b \leq 4$
- B) $30a + 50b \geq 860$
 $a + b \geq 20$
 $a \leq 5$
 $b \leq 4$
- C) $30a + 50b \leq 860$
 $a + b \geq 20$
 $a \geq 5$
 $b \geq 4$
- D) $30a + 50b \geq 860$
 $a + b \leq 20$
 $a \geq 5$
 $b \geq 4$

Hard

8



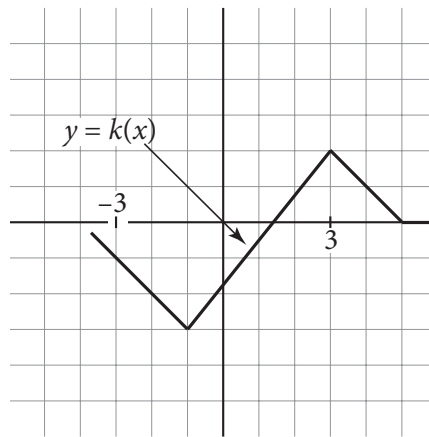
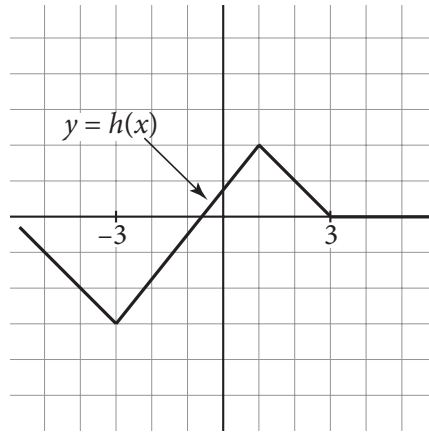
In terms of x , what is the difference between $6x + 9$ and $2x - 4$, if $x > 2$?

- A) $3x + 5$
- B) $4x - 5$
- C) $4x + 5$
- D) $4x + 13$

9

In triangle ABC , the measures of angles a , b , and c , respectively, are in the ratio 2:3:4. What is the measure of angle b ?

- A) 20
- B) 40
- C) 60
- D) 80



The graphs above show the complete functions h and k . Which one of the following expresses $k(x)$ in terms of $h(x)$?

- A) $k(x) = h(x) + 2$
- B) $k(x) = h(x) - 2$
- C) $k(x) = h(x + 2)$
- D) $k(x) = h(x - 2)$

If $h^{\frac{2}{3}} = k^2$, then in terms of k , what is the value of h^2 ?

- A) $k^{\frac{2}{3}}$
- B) $k^{\frac{4}{9}}$
- C) k^3
- D) k^6

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