

Grade 7

Problem 1.

By how much does the product of 9 and 14 exceed the product of 12 and 5 ?

- A. 55
- B. 66
- C. 77
- D. 88
- E. 99

Problem 2.

In store A , a shirt costs \$15, and in store B the same shirt is on sale for \$9. How many shirts can be bought in store B with the amount of money, excluding sales tax, needed to buy 12 shirts in store A?

- A. 14
- B. 16
- C. 18
- D. 20
- E. 22

Problem 3.

If  $P=(7)(7)(7)$ ,  $Q=(7)(8)(9)$  and  $R=(5)(6)(8)$ , which inequality statement is true?

- A.  $P < Q < R$
- B.  $R < Q < P$
- C.  $Q < R < P$
- D.  $R < P < Q$
- E.  $P < R < Q$

Problem 4.

If  $p$  and  $q$  are positive integers,  $3p+q < 41$  and  $q > 5$ , what is the greatest possible value of  $p-q$ ?

- A. 3
- B. 4
- C. 5
- D. 6
- E. 7

Grid -In

Problem 5.

If  $x^3 = 64$ , then  $3x$  must equal

- A. 1
- B.  $x^2$
- C.  $2x$
- D.  $4x$
- E. 12

Problem 6.

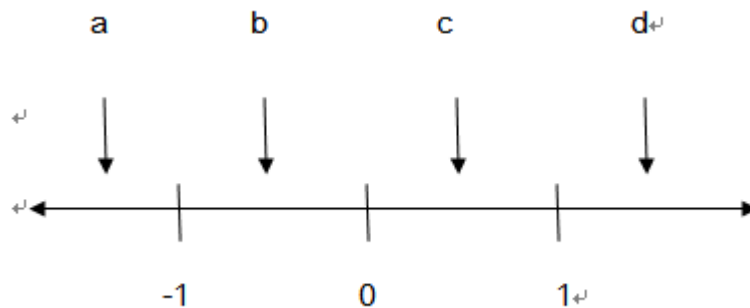
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- C. 5
- D. 6
- E. 7

Problem 7.

After  $K$  balls are put into  $G$  boxes, each box contains the same number of balls with two balls remaining. In terms of  $K$  and  $G$ , how many balls were put into each box?

- A)  $\frac{K}{G} - 2$
- B)  $\frac{K}{G} + 2$
- C)  $\frac{K+G}{G}$
- D)  $\frac{KG}{G+2}$
- E)  $\frac{K-2}{G}$



Pr.8) and 9) Refer to the diagram above

Problem.8.

Which of the following statements, must be true?

- i.  $c^2 < c$
  - ii.  $a^2 > c$
  - iii.  $b < \frac{1}{b}$
- A) i only
  - B) i and ii
  - C) i and iii
  - D) i, ii, and iii
  - E) None

Problem9.

Which of the following statements must be true?

- i.  $ad > b$
  - ii.  $ab > ad$
  - iii.  $\frac{1}{a} > \frac{1}{b}$
- A) ii only
  - B) i and ii only
  - C) ii and iii
  - D) i, ii, and iii
  - E) None

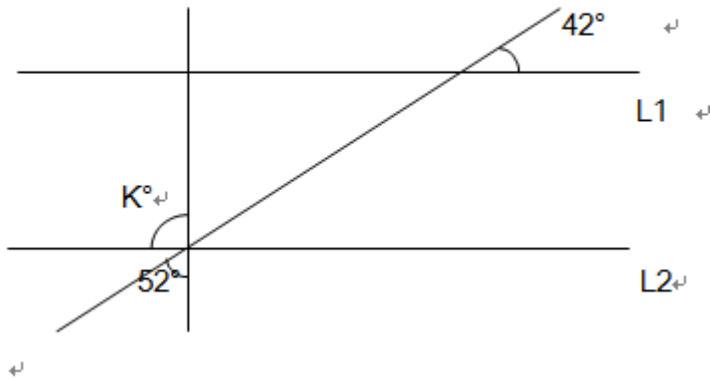
Problem10.

Which number has the greatest value?

- A) 0.3124
- B) 0.3024
- C) 0.3095
- D) 0.3127
- E) 0.3129

Problem 11.

Pr.2)

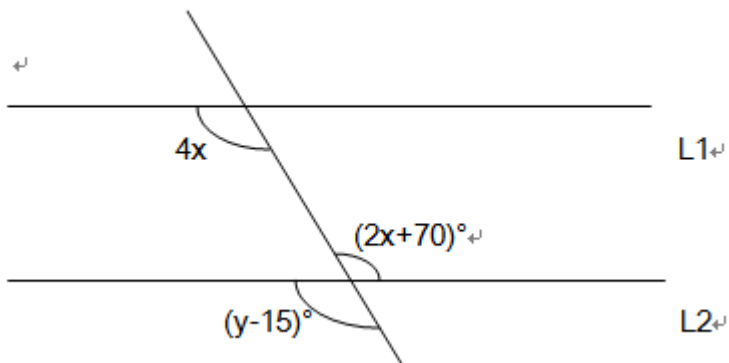


In the figure above  $L1 \parallel L2$ . What is the value of  $K$ ?

- A)  $76^\circ$
- B)  $86^\circ$
- C)  $96^\circ$
- D)  $106^\circ$
- E)  $116^\circ$

Problem 12.

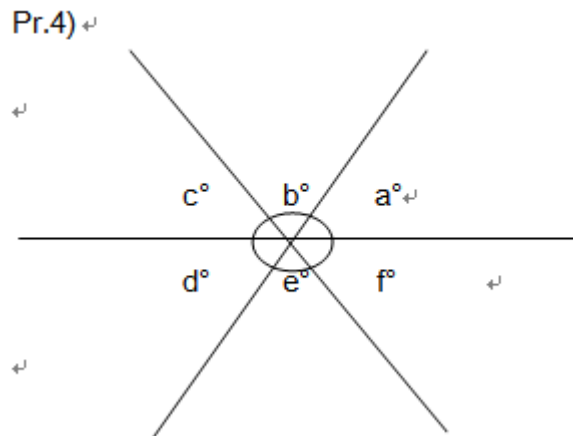
Pr.3)



In the figure above  $L1 \parallel L2$ . What is the value of  $y$ ?

- A)  $145^\circ$
- B)  $140^\circ$
- C)  $155^\circ$
- D)  $130^\circ$
- E)  $165^\circ$

Problem 13.

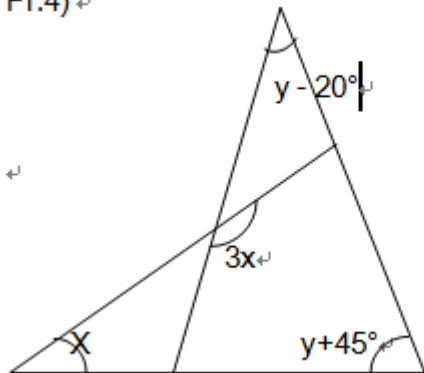


In the figure above, which of the following statements must be true?

- I.  $d + b = a + e$
  - II.  $d + b + f = 180^\circ$
  - III.  $c + e = a + d$
- A) I only  
B) II only  
C) I and III  
D) II and III  
E) I and II

Problem 14.

Pr.4)



In the figure above, what is the  $x$  in terms of  $y$ ?

A)  $y$

B)  $\frac{y}{2} + 30$

C)  $y + 25$

D)  $y + \frac{25}{2}$

E)  $\frac{y+25}{2}$

Problem 15.

$$\left(\frac{1}{10}\right)^3 + \left(\frac{2}{10}\right)^3 + \left(\frac{3}{10}\right)^3 + \left(\frac{4}{10}\right)^3 =$$

A) 0.072

B) 0.081

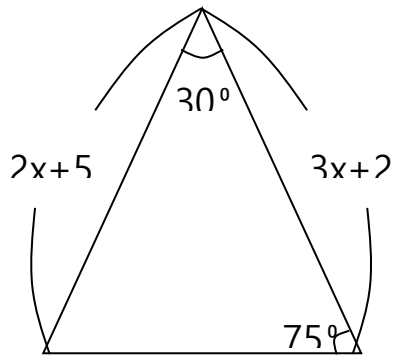
C) 0.100

D) 0.096

E) 1.105

Problem 16.

In  $\triangle ABC$ , what is the value of  $x$ ?

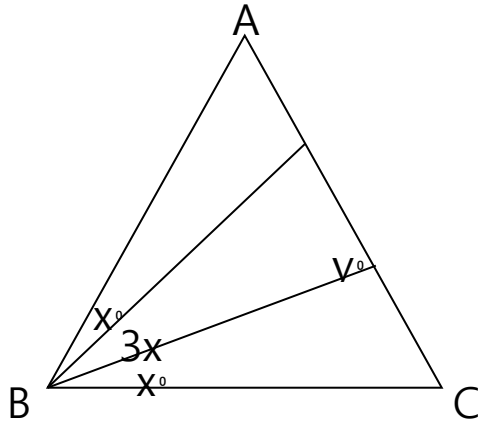


- A. 3
- B. 5
- C. 6
- D. 7
- E. It cannot be determined from the information given.



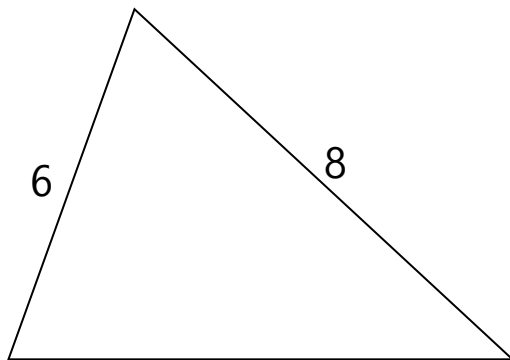
Problem 17.

In equilateral triangle ABC,  $y = ?$



- A.  $60^\circ$
- B.  $64^\circ$
- C.  $70^\circ$
- D.  $71^\circ$
- E.  $72^\circ$

Problem 18.



If the perimeter of the triangle left is 24, what is the area of the triangle?

- A. 20
- B. 22
- C. 24
- D. 26
- E. 28

Problem 19

By what percent does the volume of a cube increase when the length of each of its sides is doubled?

Problem 20.

$3x^2 + y^2 = 0$ , what is the value of  $x-y$ ?

- A. 1
- B. -1
- C. 0
- D. 2
- E. -3