

4, 11, 18, ...

1. In the sequence above, the first term is 4 and each term after the first is 7 more than the previous term. What is the 12th term of the sequence?

(A) 77
(B) 81
(C) 84
(D) 86
(E) 92

2. If $(x - 2)^2 = 49$, then x could be

(A) -9
(B) -7
(C) 2
(D) 5
(E) 9

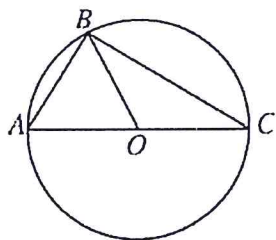
3. The average (arithmetic mean) of t and y is 15, and the average of w and x is 15. What is the average of t , w , x , and y ?

(A) 7.5
(B) 15
(C) 22.5
(D) 30
(E) 60

All of Kay's brothers can swim.

4. If the statement above is true, which of the following must also be true?

(A) If Fred cannot swim, then he is not Kay's brother.
(B) If Dave can swim, then he is not Kay's brother.
(C) If Walt can swim, then he is Kay's brother.
(D) If Pete is Kay's brother, then he cannot swim.
(E) If Mark is not Kay's brother, then he cannot swim.



5. In the figure above, triangle ABC is inscribed in the circle with center O and diameter \overline{AC} . If $AB = AO$, what is the degree measure of $\angle ABO$?

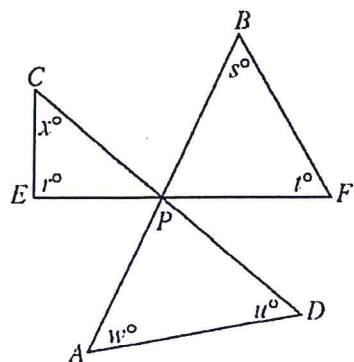
(A) 15°
(B) 30°
(C) 45°
(D) 60°
(E) 90°

6. Each of the following is equivalent to $\frac{a}{b}(bc + k)$

EXCEPT

(A) $a\left(\frac{c + k}{b}\right)$
(B) $a\left(c + \frac{k}{b}\right)$
(C) $\frac{a}{b}(k + bc)$
(D) $ac + \frac{ak}{b}$
(E) $\frac{abc + ak}{b}$

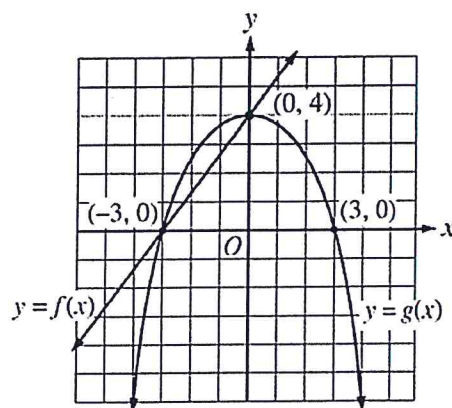
7 & 8 are on the back



Note: Figure not drawn to scale.

7. In the figure above, \overline{AB} , \overline{CD} , and \overline{EF} intersect at P . If $r = 90$, $s = 50$, $t = 60$, $u = 45$, and $w = 50$, what is the value of x ?

- (A) 45
- (B) 50
- (C) 65
- (D) 75
- (E) It cannot be determined from the information given.



8. Based on the portions of the graphs of the functions f and g shown above, what are all values of x between -6 and 6 for which $g(x) > f(x)$?

- (A) $-6 < x < -3$ only
- (B) $-3 < x < 0$ only
- (C) $0 < x < 3$ only
- (D) $3 < x < 6$ only
- (E) $-6 < x < -3$ and $0 < x < 3$

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$$\begin{array}{ccccccc} 4 & & 11 & & 18 & & \dots \\ & \swarrow & \downarrow & \swarrow & \downarrow & \swarrow & \\ & +7 & & +7 & & +7 & \end{array}$$

$$4 + 7(11) = 81$$

The 12th term begins with 4 and add eleven 7's

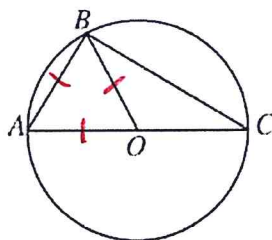
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$$t + y = 30$$

$$w + x = 30$$

$$\frac{t + y + w + x}{4} = \frac{60}{4} = 15$$



5. In the figure above, triangle ABC is inscribed in the circle with center O and diameter \overline{AC} . If $AB = AO$, what is the degree measure of $\angle ABO$?

- (A) 15°
(B) 30°
(C) 45°
(D) 60°
(E) 90°

$AO = BO$
Because all radii of the same circle are \cong
Therefore $\triangle ABO$ is equilateral &
all \angle 's = 60°

2. If $(x - 2)^2 = 49$, then x could be

- (A) -9
(B) -7
(C) 2
(D) 5
(E) 9

$$\sqrt{(x-2)^2} = \sqrt{49}$$

$$x - 2 = \pm 7$$

$$x = 7 + 2 = 9$$

$$x = -7 + 2 = -5$$

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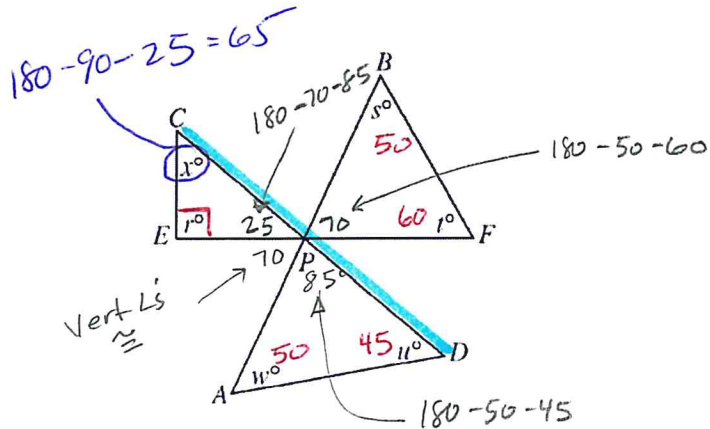
(B) $a\left(c + \frac{k}{b}\right)$ ✓

(C) $\frac{a}{b}(k + bc)$ ✓

(D) $ac + \frac{ak}{b}$ ✓

(E) $\frac{abc + ak}{b}$ ✓

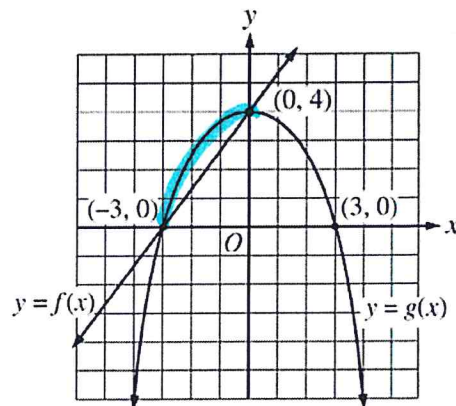
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... when is
 $g(x)$ ABOVE $f(x)$
 parabola ABOVE line
 Between -3 & 0