Name: _____

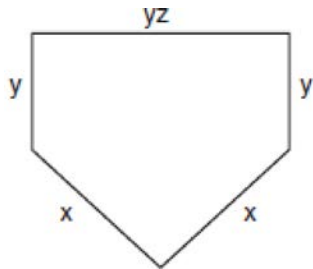## G.MG.A.3: Perimeter

1 The lengths of the sides of home plate in a baseball field are represented by the expressions in the accompanying figure.
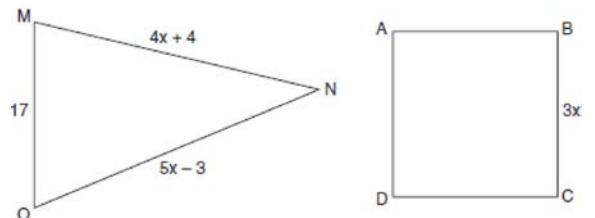

Which expression represents the perimeter of the figure?
1) $5xyz$
2) $x^2 + y^3 z$
3) $2x + 3yz$
4) $2x + 2y + yz$

2 The Pentagon building in Washington, D.C., is shaped like a regular pentagon. If the length of one side of the Pentagon is represented by $n + 2$, its perimeter would be represented by
1) $5n + 10$
2) $5n + 2$
3) $n + 10$
4) $10n$

3 The second side of a triangle is two more than the first side, and the third side is three less than the first side. Which expression represents the perimeter of the triangle?
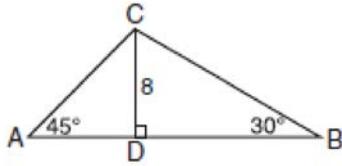1) $x + 5$
2) $2x - 1$
3) $3x - 1$
4) $x^2 - x - 6$

4 Pentagon $ABCDE$ is similar to pentagon $FGHIJ$. The lengths of the sides of $ABCDE$ are 8, 9, 10, 11, and 12. If the length of the longest side of pentagon $FGHIJ$ is 18, what is the perimeter of pentagon $FGHIJ$?
1) 50
2) 56
3) 75
4) 100

5 An engineer measured the dimensions for a rectangular site by using a wooden pole of unknown length x. The length of the rectangular site is 2 pole measures increased by 3 feet, while the width is 1 pole measure decreased by 4 feet. Write an algebraic representation, in terms of x, for the perimeter of the site.
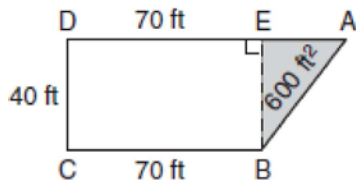
6 In the accompanying diagram, the perimeter of $\triangle MNO$ is equal to the perimeter of square $ABCD$. If the sides of the triangle are represented by $4x + 4$, $5x - 3$, and 17, and one side of the square is represented by $3x$, find the length of a side of the square.

7 In the accompanying diagram, $\overline{CD}$ is an altitude of
$\triangle ABC$. If $CD = 8$, m$\angle A = 45$, and m$\angle B = 30$,
find the perimeter of $\triangle ABC$ in simplest radical
form.

8 The plan of a parcel of land is represented by
trapezoid $ABCD$ in the accompanying diagram. If
the area of $\triangle ABE$ is 600 square feet, find the
minimum number of feet of fence needed to
completely enclose the entire parcel of land,
$ABCD$.

9 Mr. James wanted to plant a garden that would be
in the shape of a rectangle. He was given 80 feet of
fencing to enclose his garden. He wants the length
to be 10 feet more than twice the width. What are
the dimensions, in feet, for a rectangular garden
that will use exactly 80 feet of fencing?

10 Manuel plans to install a fence around the
perimeter of his yard. His yard is shaped like a
square and has an area of 40,000 square feet. The
company that he hires charges $2.50 per foot for
the fencing and $50.00 for the installation fee.
What will be the cost of the fence, in dollars?

G.MG.A.3: Perimeter
Answer Section

1 ANS: 4   REF: 010603a
2 ANS: 1
   $5(n + 2) = 5n + 10$

   REF: 089905a
3 ANS: 3
   First side: x
   Second side: $x + 2$. $x + x + 2 + x - 3 = 3x$ - 1
   Third side: $x - 3$

   REF: 060611a
4 ANS: 3

   The perimeter of *ABCDE* is 50 (8 + 9 + 10 + 11 + 12). *FGHIJ* is 1.5 $(\frac{18}{12})$ times larger than *ABCDE*.

   $50 \times 1.5 = 75$

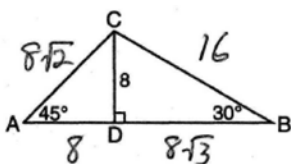   REF: 080814a
5 ANS:
   $6x - 2$. $\dfrac{(2x + 3) + (x - 4) + (2x + 3) + (x - 4)}{6x - 2}$

   REF: 080124a
6 ANS:
   $4x + 4 + 5x - 3 + 17 = 4(3x)$
   18. $9x + 18 = 12x$. $s = 3x = 3(6) = 18$
                      $x = 6$

   REF: 080537a
7 ANS:

   $24 + 8\sqrt{2} + 8\sqrt{3}$.   . Because $\triangle CDA$ is an isosceles right triangle, the ratio of its hypotenuse to its legs is $\sqrt{2}:1:1$. Because $\triangle CDB$ is a 30°-60°-90° triangle, the ratio of its hypotenuse to its legs is $2:\sqrt{3}:1$. $24 + 8\sqrt{2} + 8\sqrt{3}$

   REF: 060931b

8 ANS:

260. If $CD = 40$, then BE = 40, which is the base of the shaded triangle. To find the height, or the length of $\overline{EA}$,

$600 = \dfrac{1}{2}40h$. $\triangle ABE$ is a multiple of the 3-4-5 triangle, with legs of 30 and 40 and a hypotenuse of 50.

$h = 30$

The perimeter of trapezoid ABCD is $70 + 40 + 70 + 30 + 50 = 260$.

REF: 060134a

9 ANS:

$l + w + l + w = 80$ $l = 2w + 10$

10 × 30. $(2w + 10) + w + (2w + 10) + w = 80$ $l = 2(10) + 10$

$6w + 20 = 80$ $l = 30$

$w = 10$

REF: 060536a

10 ANS:

2,050. If the yard has an area of 40000 square feet, the length of one side of the square yard is 200 feet. The yard has a perimeter of 800 feet. $800 \times 2.5 + 50 = \$2050$

REF: 080639a