(5-9) Recursive Formulas Name_____

Write the explicit formula for the sequence.

1) 12, 16, 20, 24, 28, ...

2) 12, 112, 212, 312, 412, ...

3) $-\frac{1}{4}, -\frac{1}{6}, -\frac{1}{9}, -\frac{2}{27}, -\frac{4}{81}, \ldots$

4) –2, –10, –50, –250, –1250, ...

Write the recursive formula for the sequence.

5) –3, –6, –12, –24, –48, ...

6) 37, 67, 97, 127, 157, ...

7) –27, 173, 373, 573, 773, ...

8) –1, 6, –36, 216, –1296, ...

Find the tenth term in each sequence.

9) $a_n = -4 \cdot (-3)^{n-1}$

10) $a_n = \left(\frac{1}{2}\right)^{n-1}$

11) $a_n = 27 + 7n$

12) $a_n = 4 \cdot 2^{n-1}$

Find the explicit formula of each arithmetic sequence.

13) 21, 31, 41, 51, ...

14) 33, 29, 25, 21, ...

15) 9, 7, 5, 3, ...

16) –23, –17, –11, –5, ...

Find the recursive formula for each arithmetic sequence.

17) −28, −58, −88, −118, ...

18) −3, 17, 37, 57, ...

19) −40, −38, −36, −34, ...

20) −16, −12, −8, −4, ...

Find the explicit formula of each geometric sequence.

21) 1, −3, 9, −27, ...

22) −4, −12, −36, −108, ...

23) 3, −9, 27, −81, ...

24) 3, −6, 12, −24, ...

Find the recursive formula of each geometric sequence.

25) 2, −10, 50, −250, ...

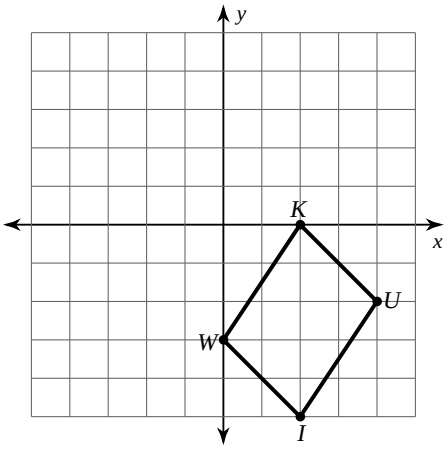
26) 2, 6, 18, 54, ...

27) −1, 4, −16, 64, ...

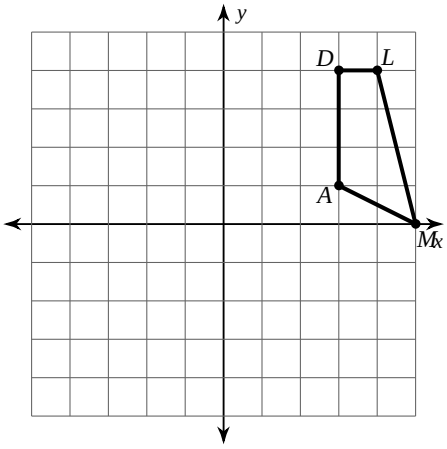
28) −4, −20, −100, −500, ...

REVIEW: Graph the image of the figure using the transformation given.

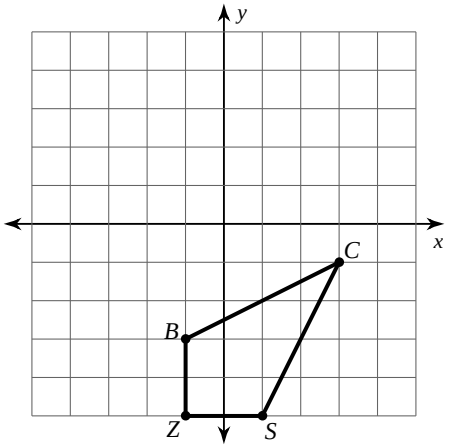
29) rotation 180° about the origin



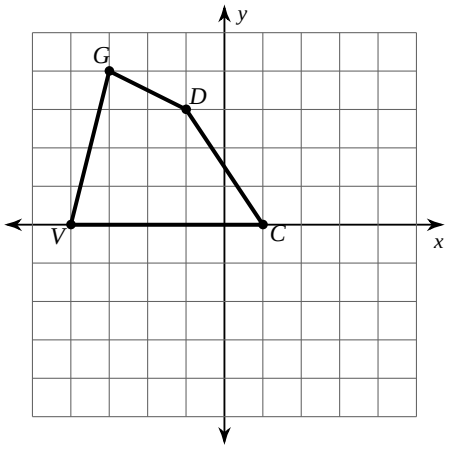
30) rotation 270° counterclockwise about the origin



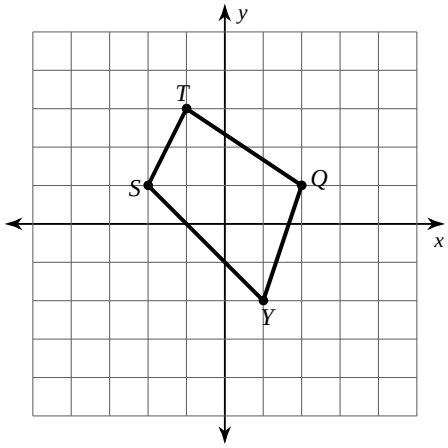
31) reflection across $y = -x$



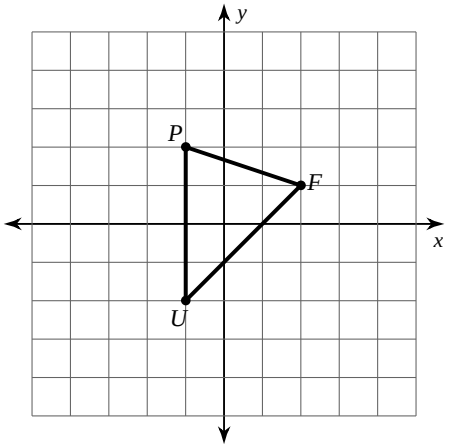
32) reflection across the x-axis



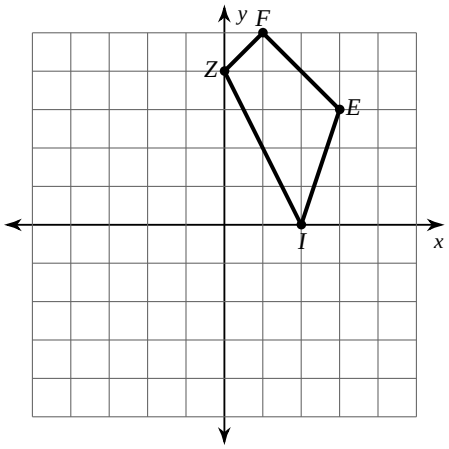
33) dilation of 1.5



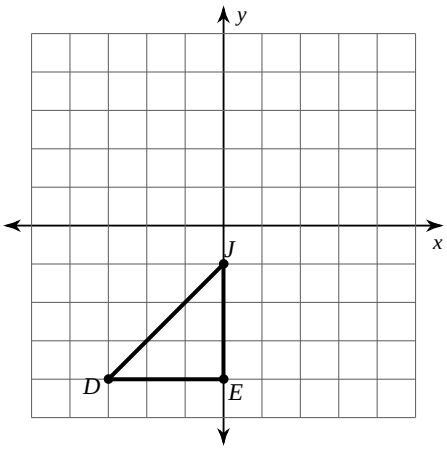
34) dilation of 2



35) translation: 1 unit left and 4 units down



36) translation: 2 units left and 2 units up



Answers to (ID: 1)

1) $a_n = 8 + 4n$

2) $a_n = -88 + 100n$

3) $a_n = -\frac{1}{4} \cdot \left(\frac{2}{3}\right)^{n-1}$

4) $a_n = -2 \cdot 5^{n-1}$

5) $a_n = a_{n-1} \cdot 2$
$a_1 = -3$

6) $a_n = a_{n-1} + 30$
$a_1 = 37$

7) $a_n = a_{n-1} + 200$
$a_1 = -27$

8) $a_n = a_{n-1} \cdot -6$
$a_1 = -1$

9) $a_{10} = 78732$

10) $a_{10} = \frac{1}{512}$

11) $a_{10} = 97$

12) $a_{10} = 2048$

13) $a_n = 11 + 10n$

14) $a_n = 37 - 4n$

15) $a_n = 11 - 2n$

16) $a_n = -29 + 6n$

17) $a_n = a_{n-1} - 30$
$a_1 = -28$

18) $a_n = a_{n-1} + 20$
$a_1 = -3$

19) $a_n = a_{n-1} + 2$
$a_1 = -40$

20) $a_n = a_{n-1} + 4$
$a_1 = -16$

21) $a_n = (-3)^{n-1}$

22) $a_n = -4 \cdot 3^{n-1}$

23) $a_n = 3 \cdot (-3)^{n-1}$

24) $a_n = 3 \cdot (-2)^{n-1}$

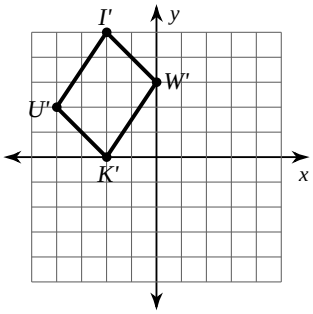
25) $a_n = a_{n-1} \cdot -5$
$a_1 = 2$

26) $a_n = a_{n-1} \cdot 3$
$a_1 = 2$

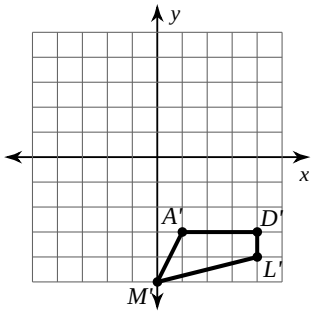
27) $a_n = a_{n-1} \cdot -4$
$a_1 = -1$

28) $a_n = a_{n-1} \cdot 5$
$a_1 = -4$

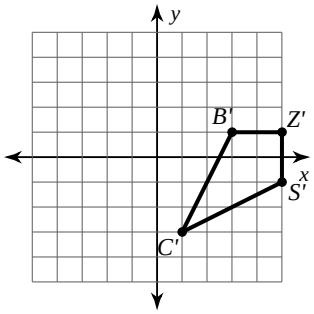
29)



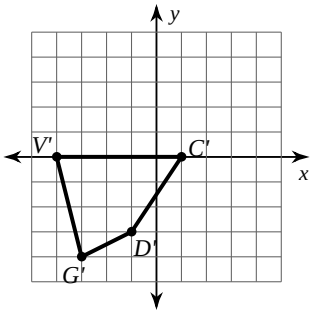
30)



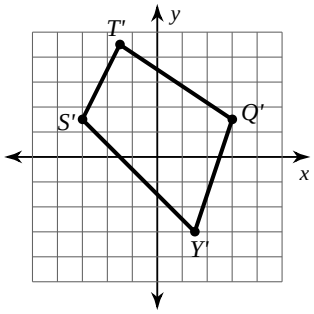
31)



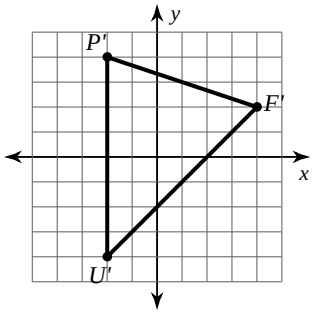
32)



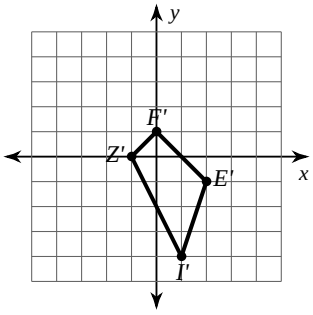
33)



34)



35)



36)