Student Work Samples

The free response answers were scored with a rubric using the following categories:

>   Extended
>
>   Satisfactory
>
>   Partial
>
>   Minimal
>
>   Incorrect

Work as a group to determine what score the following student responses received.

2. The table below shows how the chirping of a cricket is related to the temperature outside. For example, a cricket chirps 144 times each minute when the temperature is 76°.

Number Of Chirps Per Minute	Temperature
144	76°
152	78°
160	80°
168	82°
176	84°

What would be the number of chirps per minute when the temperature outside is 90° if this pattern stays the same?

Answer: _____

Explain how you figured out your answer.

Student Work Samples:

Answer: 140

Explain how you figured out your answer.

you just figure. the number and it will work you just add them together

Answer: 200

Explain how you figured out your answer.   If you need more room for your work, use the space below.

I got my aroer by contine-ing the graph until I got to 90°F Then I did the same on the other side

86   180
88   192
90   20

Answer: **200** chirps

Explain how you figured out your answer.

Well each 2° it goes 8 more chips
86° it would be 184 chirps 88° it would
be 192 chirps 90° it would be 200 chirps.

Answer: 194

Explain how you figured out your answer.

I vent up 8 chirps each 2°

4.   While she was on vacation, Tara sent 14 friends either a letter or a postcard. She spent $3.84 on postage. If it costs $0.20 to mail a postcard and $0.33 to mail a letter, how many letters did Tara send?
Show what you did to get your answer.

Student Work Samples:

She sent 8 letters. Add the money together

$$\frac{3.44}{20+33} = 7.245283$$

≈7 letters

8 letters

$$\begin{cases} 0.20x + 0.33y = 3.84 \\ x+y = 14 \end{cases}$$

$$y = 14 - x$$

$$0.20x + 0.33(14-x) = 3.84$$

$$0.20x + 4.62 - 0.33x = 3.84$$

$$0.20x - 0.33x = -0.78$$

$$\frac{-0.13x}{-0.13} = \frac{-0.78}{-0.13}$$

$$x = 6$$

$$y = 14 - 6$$
$$y = 8$$

.33
× 11 letters
3.63

3.84
−3.63
.21
= .20 postcards
.1

11 letters and 1 postcard

10. This question requires you to show your work and explain your reasoning. You may use drawings, words, and numbers in your explanation. Your answer should be clear enough so that another person could read it and understand your thinking. It is important that you show <u>all</u> your work
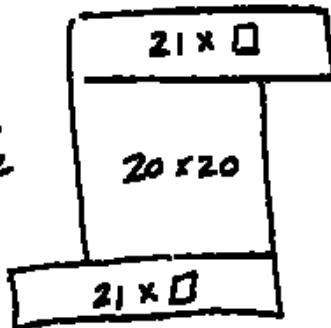
The first 3 figures in a pattern of tiles are shown below. The pattern of tiles contains 50 figures.
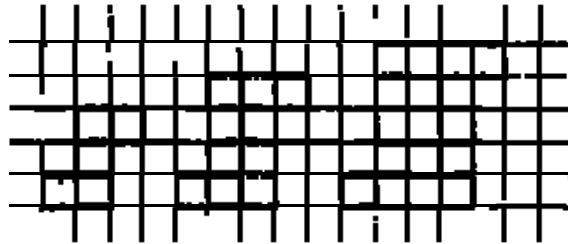
Describe the 20th figure in this pattern, including the total number of tiles it contains and how they are arranged. Then explain the reasoning that you used to determine this information. Write a description that could be used to define any figure in the pattern.

Student Work Samples:

$\frac{3}{7}$
$\frac{13}{8}$
$\frac{8}{5}$
$\frac{2}{9}$

5 tiles are added to the pattern each time so figure 20 will have 97 tiles.

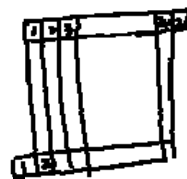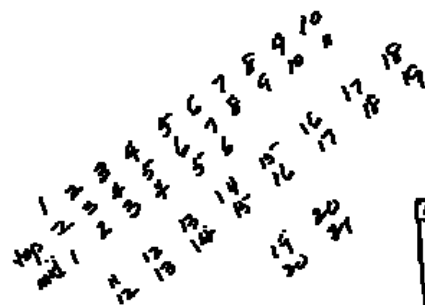the figures are in ⌐ form with the vertical line widening by a row each time.

If you need more room for your work, use the space below.

The middle rows have the number of tiles that that diagram is in the pattern. Top and bottom rows have one more tile each. Each diagram has six more tiles then one is st.


Each figure increases 1 layer in height and 1 middle layer in width for every successive relation to the first. For example, for the nth section, the figure will be n+1 units across the base, n units wide, n+1 units across the top, and n+2 units high. This is the pattern. The 20th figure will be 21 units across on the bottom length, 20 units wide in the middle, 22 units high, and 21 units at the top. The increase is linear.
Total number of tiles it contains:
$21 + (20 \times 20) + 21 = 442$
The inner square is always $(n \times n)$ units

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top 1 2 3 4 5 6 7 8 9 10
2 3 4 5 6 7 8 9 10
and 1 2 3 4 16 17 18 19
11 12 13 14 15 16 17 18
12 13 14 19 20 21

14. This question requires you to show your work and explain your reasoning. You may use drawings, words, and numbers in your explanation. Your answer should be clear enough so that another person could read it and understand your thinking. It is important that you show <u>all</u> your work.
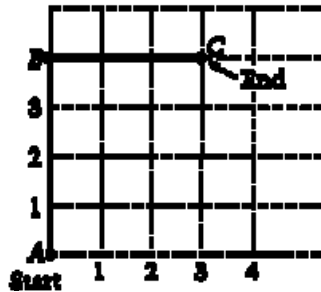
The darkened segments in the figure above show the path of an object that starts at point *A* and moves to point *C* at a constant rate of 1 unit per second. The object's distance from point *A* (or from point *C*) is the <u>shortest</u> distance between the object and the point.

In the space below, complete the following steps.
a) Sketch the graph of the distance of the object from point *A* over the 7-second period.
b) Then sketch the graph of the distance of the object from point *C* over the same period.
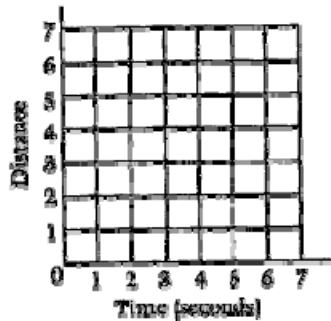
c) On your graph, label point *P* at the point where the distance of the object from point *A* is equal to the distance of the object from point *C*.
d) Between which two consecutive seconds is the object equidistant from points *A* and *C*?
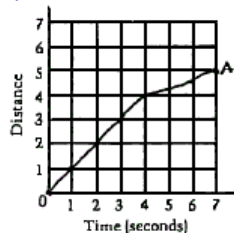
Student Work Samples:

a) Sketch the graph of the distance of the object from point *A* over the 7-second period.

b) Then sketch the graph of the distance of the object from point *C* over the same period.

c) On your graph, label point *P* at the point where the distance of the object from point *A* is equal to the distance of the object from point *C*.

d) Between which two consecutive seconds is the object equidistant from points *A* and *C*?
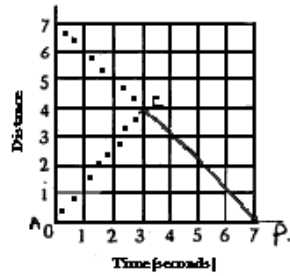
a) Sketch the graph of the distance of the object from point *A* over the 7-second period.
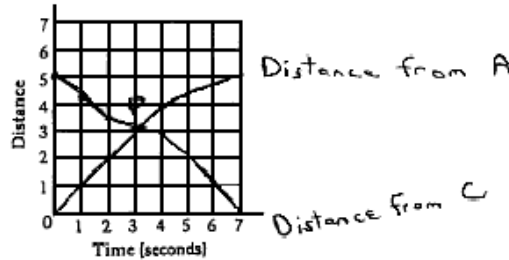
b) Then sketch the graph of the distance of the object from point *C* over the same period.

c) On your graph, label point *P* at the point where the distance of the object from point A is equal to the distance of the object from point C.

d) Between which two consecutive seconds is the object equidistant from points A and C?   Point c + P

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b) Then sketch the graph of the distance of the object from point *C* over the same period.

Distance from A

Distance from C

c) On your graph, label point *P* at the point where the distance of the object from point A is equal to the distance of the object from point C.

d) Between which two consecutive seconds is the object equidistant from points A and C?   3 and 4
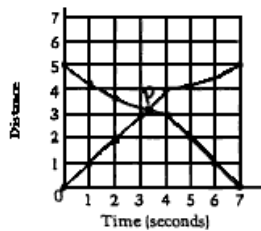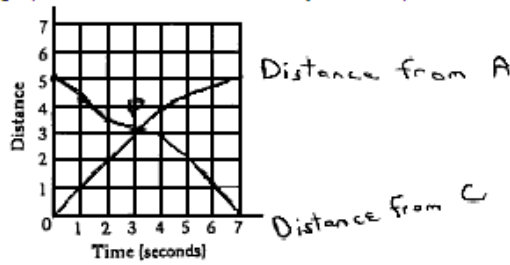
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b) Then sketch the graph of the distance of the object from point *C* over the same period.

c) On your graph, label point *P* at the point where the distance of the object from point A is equal to the distance of the object from point C.

d) Between which two consecutive seconds is the object equidistant from points A and C?   ?

b) Then sketch the graph of the distance of the object from point C over the same period.
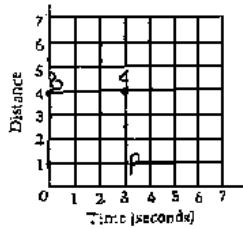

Distance from A

Distance from C

c) On your graph, label point P at the point where the distance of the object from point A is equal to the distance of the object from point C.

d) Between which two consecutive seconds is the object equidistant from points A and C?

3 and 4

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a) Sketch the graph of the distance of the object from point A over the 7-second period.

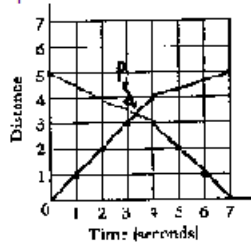b) Then sketch the graph of the distance of the object from point C over the same period.

c) On your graph, label point P at the point where the distance of the object from point A is equal to the distance of the object from point C.

d) Between which two consecutive seconds is the object equidistant from points A and C?

Point P because it is halfway between point A and point C

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a) Sketch the graph of the distance of the object from point A over the 7-second period.

b) Then sketch the graph of the distance of the object from point C over the same period.

c) On your graph, label point P at the point where the distance of the object from point A is equal to the distance of the object from point C.

d) Between which two consecutive seconds is the object equidistant from points A and C?

3 & 4