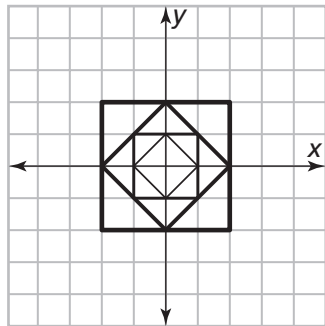


Looking for Pythagoras Answers

Investigation 1 Additional Practice

- The Art Museum and the Gas Station, the Animal Shelter and the Cemetery, and City Hall and the Stadium.
- $(-3, -2)$
- $(-3, -2)$ convenient to the taxi stand!
- Drawing below. The area is 4 triangle units.
 - Drawing below. The remaining vertices are $(1, -1)$ and $(-1, -1)$. The area is 8 triangle units.
 - Drawing below. The remaining vertices are $(2, 0)$, $(0, 2)$, $(-2, 0)$. The area is 16 triangle units.
 - Drawing below. The remaining vertices are $(2, 2)$, $(-2, 2)$, $(2, -2)$ and $(-2, -2)$. The area is 32 triangle units.



e. The area of each square is twice the area of the previous square.

- | | | |
|------------------------|----------------------|-------------------------|
| 5. 18 cm^2 | 6. 10 cm^2 | 7. 10 cm^2 |
| 8. 10 cm^2 | 9. 28 cm^2 | 10. 22.5 cm^2 |
| 11. 5.5 cm^2 | 12. 7 cm | 13. 8.5 cm^2 |
| 14. 7.5 cm^2 | | |

Skill: Graphing Equations

- $(-5, 0)$
- $(-5, -9)$
- $(-6, -3)$
- $(2, -2)$
- $(0, 5)$
- $(-2, 7)$
- $(5, 2)$
- $(2, 7)$
- 10 ways
- $(0, 5)$, $(0, 4)$, $(0, 3)$, $(0, 2)$, $(0, 1)$, $(0, -1)$, $(0, -2)$, $(0, -3)$, $(0, -4)$, $(0, -5)$

Investigation 2 Additional Practice

- 2.2
- 3.6
- 4.5
- 4.1
- 3.7
- 12.0
- Possible answer: $\sqrt{8} \approx 2.8$, $\sqrt{10} \approx 3.2$ so their sum is approximately 6. But $8 + 10 = 18$. $\sqrt{18} \approx 4.2$

- Possible answer: $\sqrt{8}$ can be made on a dot grid as the hypotenuse of a 2-by-2 right triangle. $\sqrt{10}$ can be made as the hypotenuse of a 1-by-3 right triangle. Putting these two lengths together makes a longer segment than $\sqrt{18}$, which can be made as the hypotenuse of a 3-by-3 right triangle.
- $1 + 1 + \sqrt{17} + \sqrt{10} + 1 + \sqrt{18} \approx 1 + 1 + 4.1 + 3.2 + 1 + 4.2 = 14.5$ units
 - $\sqrt{10} + \sqrt{17} + 5 \approx 3.2 + 4.1 + 5 = 12.3$ units
 - $4\sqrt{5} + 2 + 4\sqrt{2} + 2 \approx 4(2.2) + 2 + 4(1.4) + 2 = 18.4$ units
 - True
 - False
 - False. Recall that \sqrt{x} indicates the **positive** square root of x .
 - True
 - $\sqrt{2}$: AB, BC, CD, DE
 $2\sqrt{2}$: AC, BD, CE
 $3\sqrt{2}$: AD, BE
 $4\sqrt{2}$: AE
 $5\sqrt{2}$: none
 - 17, 18, 19, 20, 21, 22, 23, 24
 - 65 through 80
 - none

Skill: Exponents and Square Roots

- | | | |
|------------|------------|------------|
| 1. 8 | 2. 9 | 3. 10 |
| 4. 12 | 5. 11 ft | 6. 2 mi |
| 7. 15 in. | 8. 14 yd | 9. 8, 9 |
| 10. 7, 8 | 11. 11, 12 | 12. 12, 13 |
| 13. 8, 9 | 14. 13, 14 | 15. 14, 15 |
| 16. 12, 13 | 17. 4.2 | 18. 4.9 |
| 19. 7.1 | 20. 2.8 | |

Investigation 3 Additional Practice

- W: $\sqrt{2}$ X: $\sqrt{8}$ Y: $\sqrt{18}$ Z: $\sqrt{32}$
 - The hypotenuse of triangle X is twice the hypotenuse of triangle W. For Y, the relationship is three times W, and for Z, the relationship is four times.
- The triangle should have legs of 1 and 2
- The triangle should have legs of 2 and 4
- The triangle should have legs of 3 and 6
- Possible answer: $(0, 0)$ and $(1, 3)$

Looking for Pythagoras Answers

6. Possible answer: (0, 0) and (2, 3)
7. Possible answer: (0, 0) and (4, 4)
8. Possible answer: (0, 0) and (7, 7)
9. Possible answer: (2, 5)
10. Possible answer: (1, -1)
11. Possible answer: (-8, 2)
12. Possible answer: (11, 4)
13. $\sqrt{20}$ or $2\sqrt{5}$
14. $\sqrt{20}$ or $2\sqrt{5}$
15. $\sqrt{8}$ or $2\sqrt{2}$
16. $\sqrt{45}$ or $3\sqrt{5}$
17. 21.5 cm
18. 17.1 cm
19. 25.7 cm
20. $\sqrt{52}$ blocks
21. $\sqrt{61}$ blocks
22. 6 blocks
23. $\sqrt{40}$ blocks
24. $4\sqrt{2} + 4 \approx 4 \cdot 1.4 + 4 = 9.6$ units
25. $2\sqrt{10} + \sqrt{20} \approx 2 \cdot 3.2 + 4.5 = 10.9$ units
26. $2\sqrt{20} + \sqrt{40} \approx 2 \cdot 4.5 + 6.3 = 15.3$ units

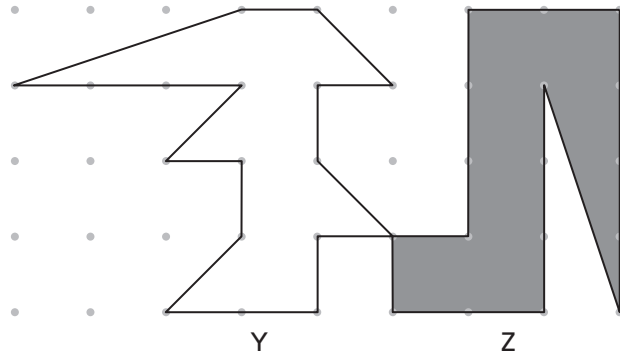
Skill: Using the Pythagorean Theorem

1. yes, $20^2 + 21^2 \cong 29^2$, $400 + 441 \cong 841$, $841 = 841$
2. no, $7^2 + 11^2 \cong 12^2$, $49 + 121 \cong 144$, $170 \neq 144$
3. yes, $10^2 + (2\sqrt{11})^2 \cong 12^2$, $100 + 44 \cong 144$, $144 = 144$
4. yes, $28^2 + 45^2 \cong 53^2$, $784 + 2,025 \cong 2,809$, $2,809 = 2,809$
5. no, $9^2 + (\sqrt{10})^2 \cong 10^2$, $81 + 10 \cong 100$, $91 \neq 100$
6. no, $10^2 + 15^2 \cong 20^2$, $100 + 225 \cong 400$, $325 \neq 400$
7. $x = 8$ cm
8. $x = 10$ ft
9. $x = 10$ mm
10. $x \approx 5.7$ in.
11. $x = 11$ m
12. $x \approx 7.2$ yd

Investigation 4 Additional Practice

1. 1.44 cm
2. 0.86 cm
3. 10.00 cm
4. 4.33 cm
5. 24.1 cm
6. 41.0 cm
7. 30.3 cm
8. 33.6 cm

9. a. W: 9.5 units²
X: 5.5 units²
- b. Answers will vary. Possible answers:



10. The third side is a leg of length 3 units.
11. The third side is a leg of $\sqrt{26}$ units.
12. 1. the missing leg is 12 units
2. the hypotenuse is $\sqrt{306}$ units
13. 1. the missing leg is 6 units
2. the hypotenuse is $\sqrt{54}$ units
14. 1. the missing leg is 5 units
2. the hypotenuse is $\sqrt{75}$ units
15. 1. the missing leg is 3 units
2. the hypotenuse is $\sqrt{27}$ units
16. 1. the missing leg is $\sqrt{46}$ units
2. the hypotenuse is $\sqrt{82}$ units
17. 1. the missing leg is $\sqrt{26}$ units
2. the hypotenuse is $\sqrt{78}$ units

Skill: Special Right Triangles

1. $14\sqrt{3}, 28$
2. 18, $18\sqrt{3}$
3. 9, 18
4. $5\sqrt{3}, 10$
5. 11, $11\sqrt{2}$
6. 8.7, $8.7\sqrt{2}$
7. 7, 7
8. 17, $17\sqrt{2}$
9. 6
10. 6
11. $3\sqrt{2}$
12. $3\sqrt{6}$