1^2 Exponent

$1 \times 1 = 1$

$2^2 = 2 \times 2 = 4$

$3 \times 3 = 9$

$4 \times 4 = 16$

$5 \times 5 = 25$

Base

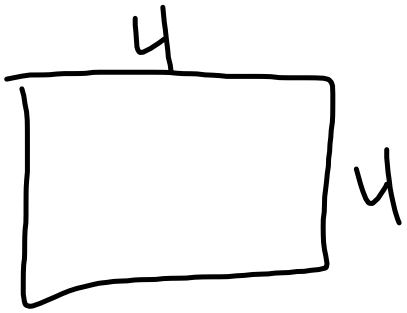
Perfect squares

$\sqrt{0.16}$

0.4×0.4

$\sqrt{16}$ $\sqrt{22.5}$ $\sqrt{25}$

4 4.7 5

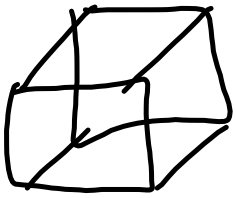


$A = 4^2$

$A = 16$

$\sqrt{16}$

$= 4.$



-> 6 squares in a cube.

(Perfect Square).

⇒ Whole numbers. ← # w/o a decimal

⇒ Decimals ⇒ Repeating or 0.7525

Terminating 0.25
(not going on)

4) $\sqrt{\frac{72 \div 2}{98 \div 2}} = \sqrt{\frac{36}{49}} = \frac{6}{7}$

$= \frac{\sqrt{36}}{\sqrt{49}}$

Homework

→ Complete Unit #1 for Tuesday.

Per #1

Tuesday Jan 20/15

8:30 am

Multiple Choice

Identify the choice that best completes the statement or answers the question.

A 1. Determine the value of $\sqrt{0.16}$.
(a) 0.4 b. 0.07 c. 0.2 d. 0.04

A 2. Calculate the number whose square root is 0.9.
(a) 0.81 b. 0.0081 c. 0.081 d. 0.09

A 3. Which numbers are perfect squares?
(i) 30.25 (ii) 32 (iii) 28.9 (iv) 1.44
(a) i and iv b. ii and iii c. i and ii d. i and iii

B 4. Determine the value of $\sqrt{\frac{72}{98}}$.
a. $\frac{6}{14}$ (b.) $\frac{6}{7}$ c. $\frac{12}{7}$ d. $\frac{36}{49}$

B 5. Name the two whole numbers whose squares are closest to 22.5.
a. 9, 25 (b.) 4, 5 c. 4, 9 d. 16, 25

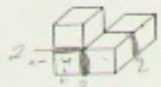
D 6. Name the two whole numbers whose squares are closest to $\frac{595}{10}$.
a. 49, 64 b. 4, 9 c. 16, 25 (d.) 7, 8

B 7. Estimate the value of $\sqrt{0.35}$, to the nearest tenth.
a. 0.5 (b.) 0.6 c. 0.59 d. 0.9

D 8. A square has an area of 24.8 cm^2.
Determine the side length of the square, to the nearest centimeter.
a. 4.98 cm b. 4.9 cm c. 5.0 cm (d.) 5 cm

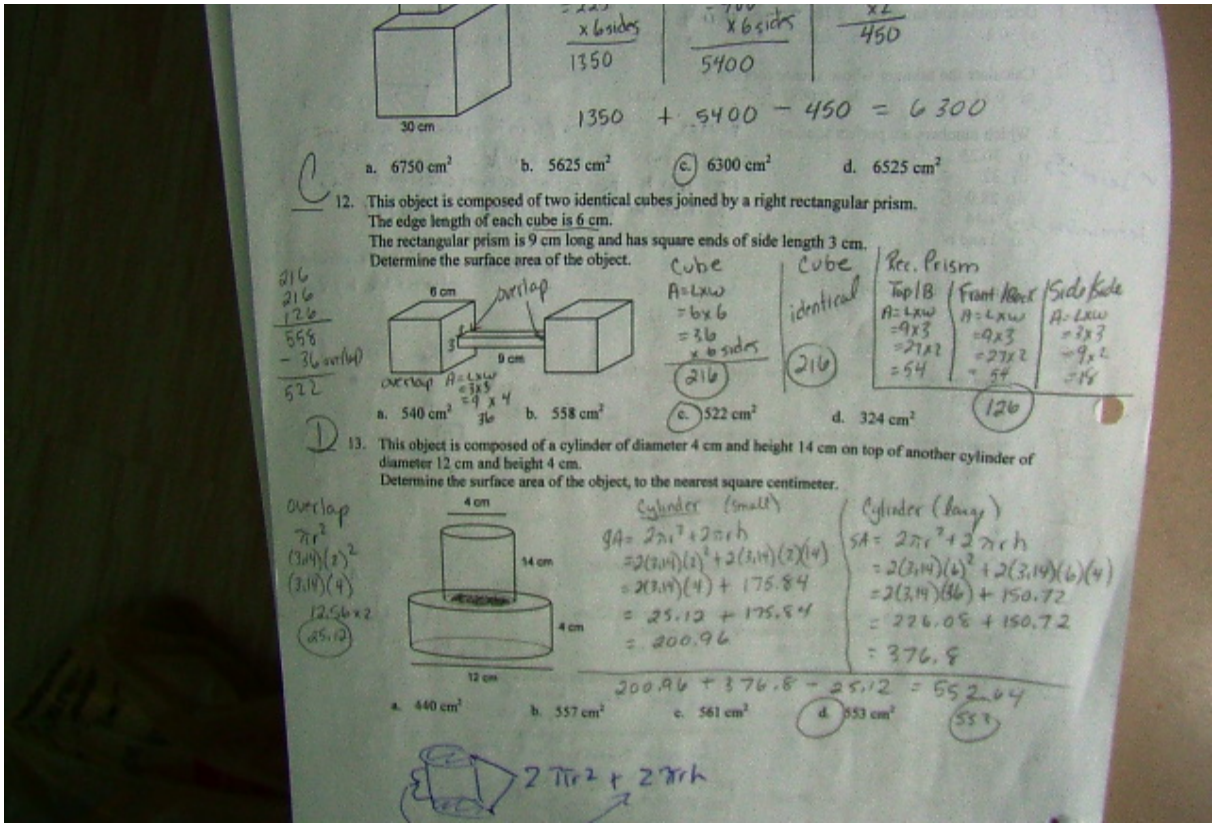
C 9. The lengths of the two legs of a right triangle are 6.7 cm and 3.2 cm.
Determine the length of the hypotenuse to 1 decimal place.
a. 55.1 cm b. 5.9 cm (c.) 7.4 cm d. 3.1 cm

D 10. This composite object is made using centimetre cubes. Determine its surface area.



a. 24 cm^2 b. 20 cm^2 c. 15 cm^2 (d.) 18 cm^2

(1)



30 cm

x 6 sides
1350

x 6 sides
5400

x2
450

1350 + 5400 − 450 = 6300

C a. 6750 cm² b. 5625 cm² (c.) 6300 cm² d. 6525 cm²

12. This object is composed of two identical cubes joined by a right rectangular prism.
The edge length of each cube is 6 cm.
The rectangular prism is 9 cm long and has square ends of side length 3 cm.
Determine the surface area of the object.

216
216
126
558
− 36 overlap
522

6 cm
overlap
3
9 cm
overlap A=LxW =3x3 =9 x 4
36

Cube
A=LxW
=6x6
=36
x 6 sides
216

Cube
identical
216

Rec. Prism
Top/B | Front/Back | Side/Side
A=LxW | A=LxW | A=LxW
=9x3 | =9x3 | =3x3
=27x2 | =27x2 | =9x2
=54 | =54 | =18
126

a. 540 cm² b. 558 cm² (c.) 522 cm² d. 324 cm²

D 13. This object is composed of a cylinder of diameter 4 cm and height 14 cm on top of another cylinder of diameter 12 cm and height 4 cm.
Determine the surface area of the object, to the nearest square centimeter.

overlap
πr²
(3.14)(2)²
(3.14)(4)
12.56x2
(25.12)

4 cm
14 cm
4 cm
12 cm

Cylinder (small)
SA = 2πr² + 2πrh
=2(3.14)(2)² + 2(3.14)(2)(14)
=2(3.14)(4) + 175.84
= 25.12 + 175.84
= 200.96

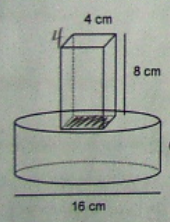
Cylinder (Large)
SA = 2πr² + 2πrh
=2(3.14)(6)² + 2(3.14)(6)(4)
=2(3.14)(36) + 150.72
= 226.08 + 150.72
= 376.8

200.96 + 376.8 − 25.12 = 552.64

a. 440 cm² b. 557 cm² c. 561 cm² (d.) 553 cm²
553

2πr² + 2πrh

14. This object is composed of a rectangular prism on top of a cylinder.
The rectangular prism has height 8 cm and square ends of side length 4 cm.
The cylinder has diameter 16 cm and height 6 cm.
Determine the surface area of the object, to the nearest square centimeter.



overlap
$A = L \times w$
$= 4 \times 4$
$= 16_{\times 2}$
$= 32$

Rectangular Prism

T/B	F/B	S/S
$A = L \times w$	$A = L \times w$	$A = L \times w$
$= 4 \times 4$	$= 8 \times 4$	$= 8 \times 4$
$= 16 \times 2$	$= 32_{\times 2}$	$= 32_{\times 2}$
$= 32$	$= 64$	$= 64$

160

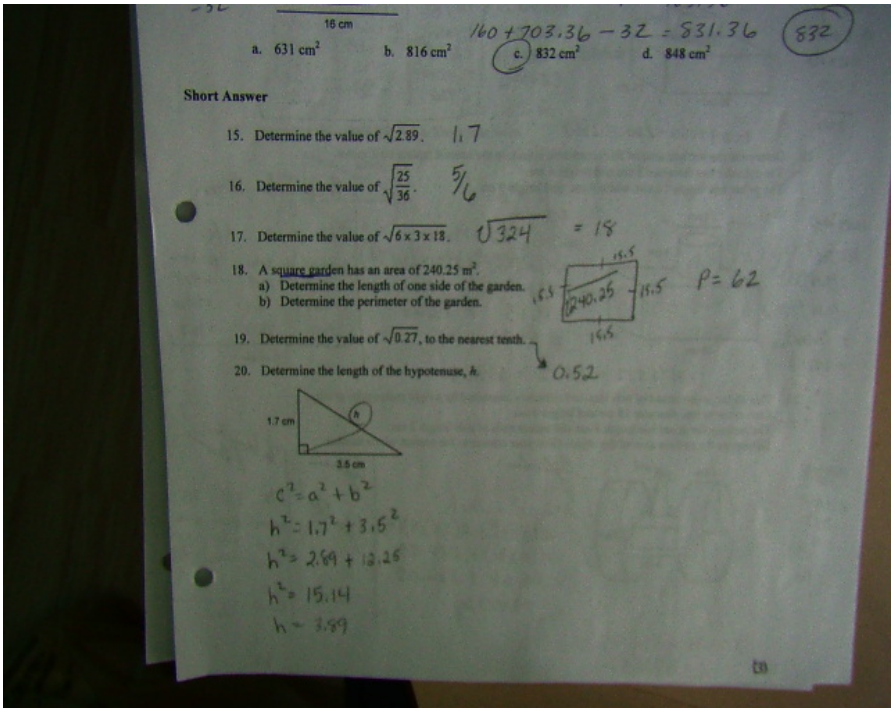
Cylinder
$SA = 2\pi r^2 + 2\pi rh$
$= 2(3.14)(8)^2 + 2(3.14)(8)(6)$
$= 2(3.14)(64) + 301.44$
$= 401.92 + 301.44$
$= 703.36$

$160 + 703.36 - 32 = 831.36$ (832)

a. 631 cm^2 b. 816 cm^2 c. 832 cm^2 d. 848 cm^2

Short Answer

15. Determine the value of $\sqrt{2.89}$. 1.7



16 cm

160 + 703.36 − 32 = 831.36 (832)

a. 631 cm² b. 816 cm² c. 832 cm² d. 848 cm²

Short Answer

15. Determine the value of $\sqrt{2.89}$. 1.7

16. Determine the value of $\sqrt{\frac{25}{36}}$. 5/6

17. Determine the value of $\sqrt{6 \times 3 \times 18}$. $\sqrt{324}$ = 18

18. A square garden has an area of 240.25 m².
    a) Determine the length of one side of the garden.
    b) Determine the perimeter of the garden.

15.5 | 240.25 | 15.5 P = 62

15.5

19. Determine the value of $\sqrt{0.27}$, to the nearest tenth. 0.52

20. Determine the length of the hypotenuse, *h*.

1.7 cm, h, 3.5 cm

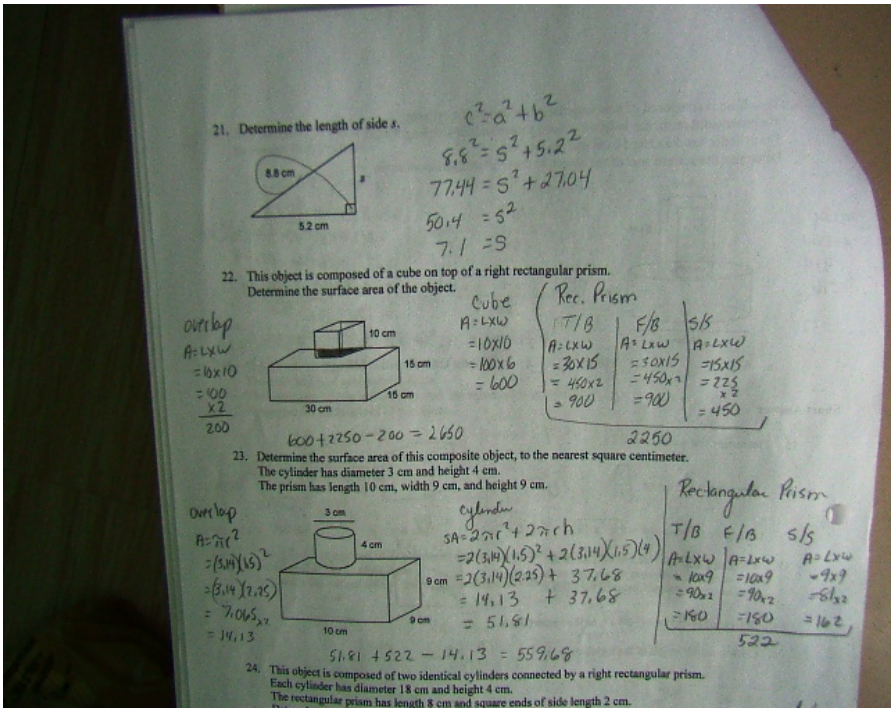
$c^2 = a^2 + b^2$

$h^2 = 1.7^2 + 3.5^2$

$h^2 = 2.89 + 12.25$

$h^2 = 15.14$

$h = 3.89$



21. Determine the length of side s.

8.8 cm, s, 5.2 cm

$c^2 = a^2 + b^2$

$8.8^2 = s^2 + 5.2^2$

$77.44 = s^2 + 27.04$

$50.4 = s^2$

$7.1 = s$

22. This object is composed of a cube on top of a right rectangular prism.
Determine the surface area of the object.

10 cm, 15 cm, 15 cm, 30 cm

Overlap
$A = L \times W$
$= 10 \times 10$
$= 100$
$\times 2$
200

Cube
$A = L \times W$
$= 10 \times 10$
$= 100 \times 6$
$= 600$

Rec. Prism

T/B	F/B	S/S
$A = L \times W$	$A = L \times W$	$A = L \times W$
$= 30 \times 15$	$= 50 \times 15$	$= 15 \times 15$
$= 450 \times 2$	$= 450 \times 2$	$= 225$
$= 900$	$= 900$	$\times 2$
		$= 450$

2250

$600 + 2250 - 200 = 2650$

23. Determine the surface area of this composite object, to the nearest square centimeter.
The cylinder has diameter 3 cm and height 4 cm.
The prism has length 10 cm, width 9 cm, and height 9 cm.

3 cm, 4 cm, 9 cm, 10 cm, 9 cm

Overlap
$A = \pi r^2$
$= (3.14)(1.5)^2$
$= (3.14)(2.25)$
$= 7.065 \times 2$
$= 14.13$

Cylinder
$SA = 2\pi r^2 + 2\pi rh$
$= 2(3.14)(1.5)^2 + 2(3.14)(1.5)(4)$
$= 2(3.14)(2.25) + 37.68$
$= 14.13 + 37.68$
$= 51.81$

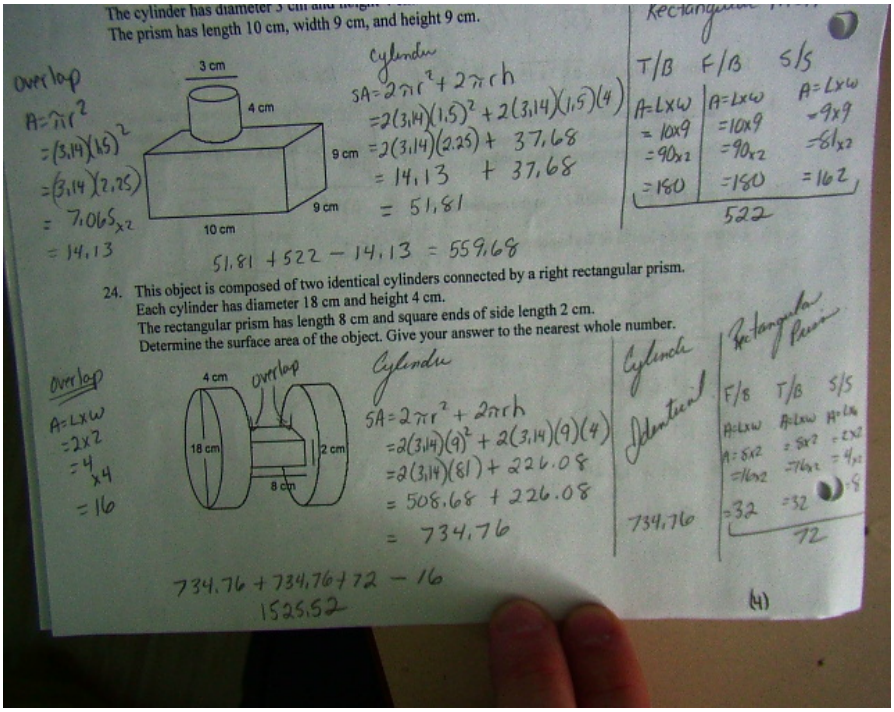
Rectangular Prism

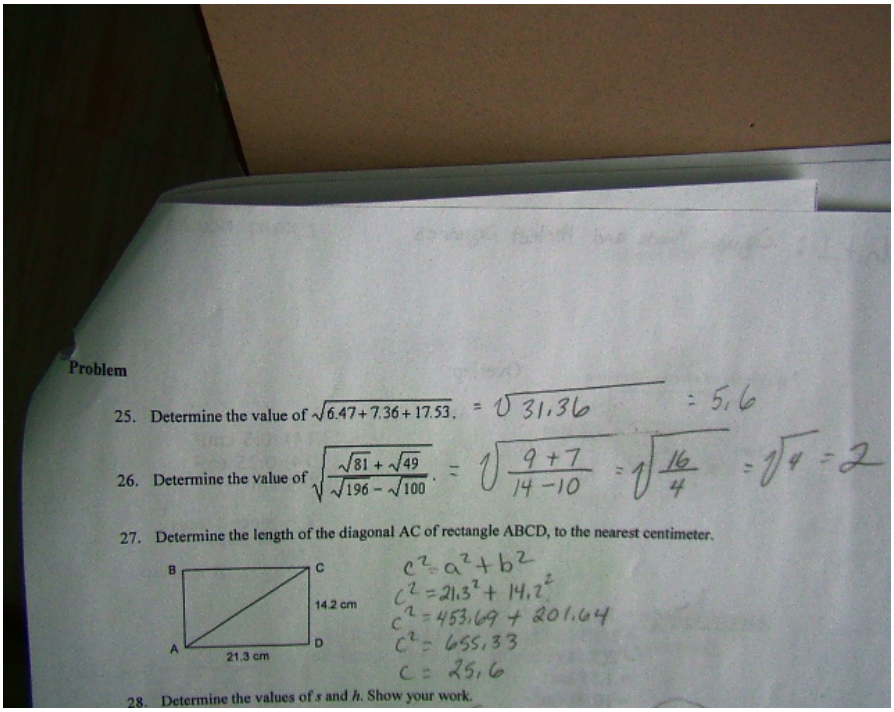
T/B	F/B	S/S
$A = L \times W$	$A = L \times W$	$A = L \times W$
$= 10 \times 9$	$= 10 \times 9$	$= 9 \times 9$
$= 90 \times 1$	$= 90 \times 2$	$= 81 \times 2$
$= 180$	$= 180$	$= 162$

522

$51.81 + 522 - 14.13 = 559.68$

24. This object is composed of two identical cylinders connected by a right rectangular prism.
Each cylinder has diameter 18 cm and height 4 cm.
The rectangular prism has length 8 cm and square ends of side length 2 cm.


The prism has length 10 cm, width 9 cm, and height 9 cm.
3 cm
4 cm
9 cm
9 cm
10 cm
Overlap
A=πr²
=(3,14)(1,5)²
=(3,14)(2,25)
= 7,065 x2
= 14,13
Cylinder
SA=2πr²+2πrh
=2(3,14)(1,5)²+2(3,14)(1,5)(4)
=2(3,14)(2,25)+ 37,68
= 14,13 + 37,68
= 51,81
51,81 + 522 − 14,13 = 559,68
T/B F/B S/S
A=LxW A=LxW A=LxW
= 10x9 =10x9 =9x9
=90x2 =90x2 =81x2
=180 =180 =162
522
24. This object is composed of two identical cylinders connected by a right rectangular prism.
Each cylinder has diameter 18 cm and height 4 cm.
The rectangular prism has length 8 cm and square ends of side length 2 cm.
Determine the surface area of the object. Give your answer to the nearest whole number.
4 cm
Overlap
18 cm
2 cm
8 cm
Overlap
A=LxW
=2x2
=4
x4
=16
Cylinder
SA=2πr²+2πrh
=2(3,14)(9)²+2(3,14)(9)(4)
=2(3,14)(81)+226.08
= 508.68 + 226.08
= 734.76
Cylinder
Identical
734,76
F/B T/B S/S
A=LxW A=LxW A=LxW
A=8x2 =8x2 =2x2
=16x2 =16x2 =4x2
=32 =32 =8
72
734.76 + 734,76 + 72 − 16
1525.52
(4)



Problem

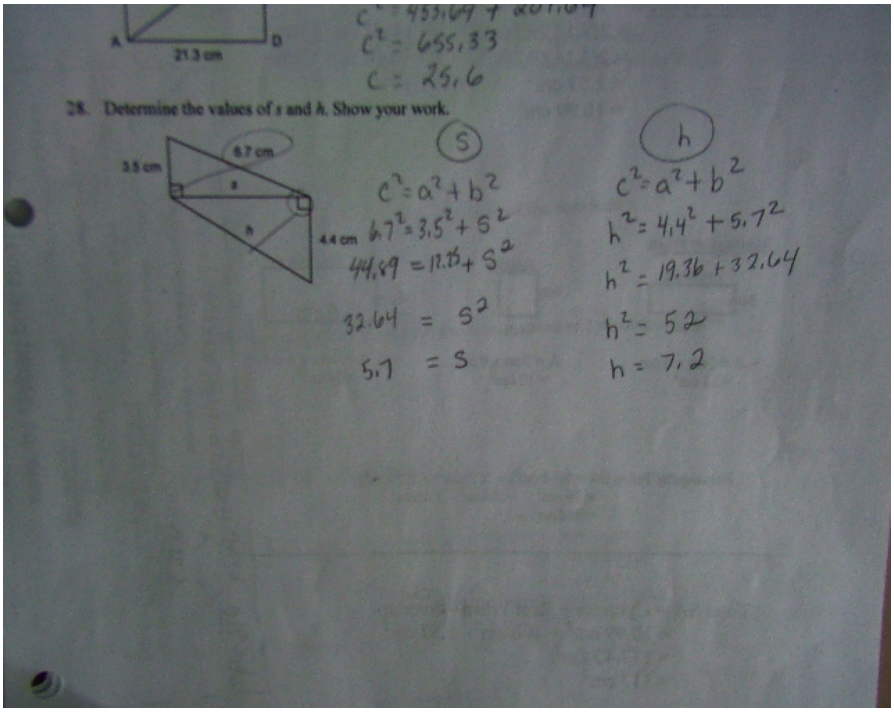
25. Determine the value of $\sqrt{6.47+7.36+17.53}$. $= \sqrt{31.36} = 5.6$

26. Determine the value of $\sqrt{\frac{\sqrt{81}+\sqrt{49}}{\sqrt{196}-\sqrt{100}}}$. $= \sqrt{\frac{9+7}{14-10}} = \sqrt{\frac{16}{4}} = \sqrt{4} = 2$

27. Determine the length of the diagonal AC of rectangle ABCD, to the nearest centimeter.

$c^2 = a^2 + b^2$
$c^2 = 21.3^2 + 14.2^2$
$c^2 = 453.69 + 201.64$
$c^2 = 655.33$
$c = 25.6$

28. Determine the values of s and h. Show your work.


A
D
21.3 cm
$c^2 = 655.33$
$c = 25.6$
28. Determine the values of s and h. Show your work.
6.7 cm
3.5 cm
s
h
4.4 cm
s
$c^2 = a^2 + b^2$
$6.7^2 = 3.5^2 + s^2$
$44.89 = 12.25 + s^2$
$32.64 = s^2$
$5.7 = s$
h
$c^2 = a^2 + b^2$
$h^2 = 4.4^2 + 5.7^2$
$h^2 = 19.36 + 32.64$
$h^2 = 52$
$h = 7.2$