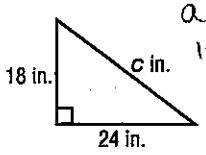
NAME _____ DATE _____ PERIOD _____

10-4 Skills Practice

The Pythagorean Theorem

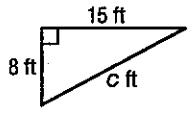
Find the length of the hypotenuse of each right triangle. Round to the nearest tenth, if necessary.

1.



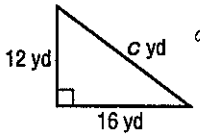
$a^2+b^2=c^2$
$18^2+24^2=c^2$
$324+576=c^2$
$\sqrt{900}=\sqrt{c^2}$
30 inches = c

2.



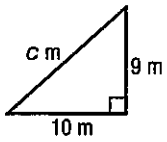
$a^2+b^2=c^2$
$8^2+15^2=c^2$
$64+225=c^2$
$\sqrt{289}=\sqrt{c^2}$
17 feet = c

3.



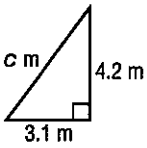
$a^2+b^2=c^2$
$12^2+16^2=c^2$
$144+256=c^2$
$\sqrt{400}=\sqrt{c}$
20 yds = c

4.



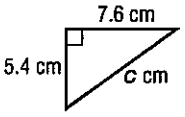
$c^2=9^2+10^2$
$c^2=81+100$
$\sqrt{c^2}=\sqrt{181}$
$13^2=169$ | $14^2=196$
c ≈ 13m or 13.5m

5.



$c^2=a^2+b^2$
$c^2=4.2^2+3.1^2$
$c^2=17.64+9.61$ 34
$\sqrt{c^2}=\sqrt{27.25}$
c ≈ 5 m or 5.2 m

6.



$a^2+b^2=c^2$
$5.4^2+7.6^2=c^2$
$29.16+57.76=c^2$ 100
$81\sqrt{86.92}=\sqrt{c^2}$
9 cm = c or 9.30m

If c is the measure of the hypotenuse, find each missing measure. Round to the nearest tenth, if necessary.

7. $a = ?, b = 24, c = 26$
$26^2=24^2+a^2$
$676=576+a^2$
$\sqrt{100}=\sqrt{a^2}$
$10=a$

8. $a = 16, b = ?, c = 34$
$34^2=16^2+b^2$
$1156=256+b^2$
$\sqrt{900}=\sqrt{b^2}$
$30=b$

9. $a = 24, b = ?, c = 40$

10. $a = 5, b = ?, c = 7$

11. $a = ?, b = 32, c = 39$

12. $a = 21, b = ?, c = 48$

13. $a = 18, b = 29, c = ?$

14. $a = ?, b = 36, c = 49$

15. $a = 8, b = ?, c = 12$

16. $a = 14, b = 21, c = ?$

17. $a = ?, b = 30, c = 40$

18. $a = 4, b = ?, c = 7$

19. $a = 13, b = 18, c = ?$

20. $a = ?, b = 55, c = 75$

The lengths of three sides of a triangle are given. Determine whether each triangle is a right triangle.

21. 14 m, 5 m, 4 m

22. 3 in., 4 in., 5 in.

10.4 Skills Practice

#9. $40^2 = 24^2 + b^2$

$1600 = 576 + b^2$

$\sqrt{1024} = \sqrt{b^2}$

$\boxed{32 = b}$

#10 $7^2 = 5^2 + b^2$

$49 = 25 + b^2$

$\sqrt{24} = \sqrt{b^2}$ (16, 25)

$5 \approx b$ or 4.9

#11 $39^2 = a^2 + 32^2$

$1521 = a^2 + 1024$

$\sqrt{497} = \sqrt{a^2}$ (22 = 484, 529)

$22 \approx a$ or 22.3

#12 $48^2 = 21^2 + b^2$

$2304 = 441 + b^2$

$\sqrt{1863} = \sqrt{b^2}$ (1849 = 43, 1863, 1936)

$\boxed{b \approx 43}$ or 43.2

#13 $c^2 = 18^2 + 29^2$

$c^2 = 324 + 841$

$\sqrt{c^2} = \sqrt{1165}$

$\boxed{c \approx 34}$ or 34.1

(32 = 1024, 33 = 1089, 34 = 1156, 35 = 1225)

#14 $49^2 = a^2 + 36^2$

$2401 = a^2 + 1296$

$\sqrt{1105} = \sqrt{a^2}$

$\boxed{33.2 \approx a}$

#15 $12^2 = 8^2 + b^2$

$144 = 64 + b^2$

$\sqrt{80} = \sqrt{b^2}$

$8.9 \approx a$

#16 $c^2 = 14^2 + 21^2$

$c^2 = 196 + 441$

$\sqrt{c^2} = \sqrt{637}$

$\boxed{c = 25.2}$

#17 $40^2 = a^2 + 30^2$

$1600 = a^2 + 900$

$\sqrt{700} = \sqrt{a^2}$

$\boxed{26.5 = a}$

#18 $7^2 = 4^2 + b^2$

$49 = 16 + b$

$\sqrt{33} = \sqrt{b}$

$\boxed{5.7 = b}$

#19 $c^2 = 13^2 + 18^2$

$c^2 = 169 + 324$

$\sqrt{c^2} = \sqrt{493}$

$\boxed{c = 22.2}$

#20 $75^2 = a^2 + 55^2$

$5625 = a^2 + 3025$

$\sqrt{2600} = \sqrt{a^2}$

$\boxed{51 = a}$

21 $a^2 + b^2 = c^2$

$4^2 + 5^2 = 14^2$

$16 + 25 = 196$

$41 \neq 196$

$\boxed{\text{No, not a RT } \triangle}$

22 $5^2 = 3^2 + 4^2$

$25 = 9 + 16$

$25 = 25$

$\boxed{\text{Yes, a RT } \triangle}$

10.4 Practice

1. $c^2 = 15^2 + 20^2$
$c^2 = 225 + 400$
$\sqrt{c^2} = \sqrt{625}$
$\boxed{c = 25\text{ ft}}$

2. $c^2 = 30^2 + 16^2$
$c^2 = 900 + 256$
$\sqrt{c^2} = \sqrt{1156}$
$\boxed{c = 34\text{ m}}$

3. $c^2 = 22^2 + 31^2$
$c^2 = 484 + 961$
$\sqrt{c^2} = \sqrt{1445}$
$\boxed{c = 38.01\text{ inches}}$

4. $c^2 = 6^2 + 7.3^2$
$c^2 = 36 + 53.29$
$\sqrt{c^2} = \sqrt{89.29}$
$\boxed{c = 9.5\text{ ft}}$

5. $c^2 = 15.2^2 + 12.2^2$
$c^2 = 231.04 + 148.84$
$\sqrt{c^2} = \sqrt{379.88}$
$\boxed{c = 19.5\text{ cm}}$

6. $c^2 = 71.4^2 + 58.6^2$
$c^2 = 5097.96 + 3433.96$
$\sqrt{c^2} = \sqrt{8531.92}$
$\boxed{c = 92.4\text{ inches}}$

7. $31^2 = a^2 + 15^2$
$961 = a^2 + 225$
$\sqrt{736} = \sqrt{a^2}$
$\boxed{27.1 = a}$

8. $16^2 = 8^2 + b^2$
$256 = 64 + b^2$
$\sqrt{192} = \sqrt{b^2}$
$\boxed{13.9 = b}$

9. $c^2 = 11^2 + 16^2$
$c^2 = 121 + 256$
$\sqrt{c^2} = \sqrt{377}$
$\boxed{c = 19.4}$

10. $19^2 = a^2 + 13^2$
$361 = a^2 + 169$
$\sqrt{192} = \sqrt{a^2}$
$\boxed{13.9 = a}$

11. $18^2 = 10^2 + b^2$
$324 = 100 + b^2$
$\sqrt{224} = \sqrt{b^2}$
$\boxed{15.0 = b}$

12. $c^2 = 21^2 + 23^2$
$c^2 = 441 + 529$
$\sqrt{c^2} = \sqrt{970}$
$\boxed{c = 31.1}$

13. $35^2 = a^2 + 27^2$
$1225 = a^2 + 729$
$\sqrt{496} = \sqrt{a^2}$
$\boxed{22.3 = a}$

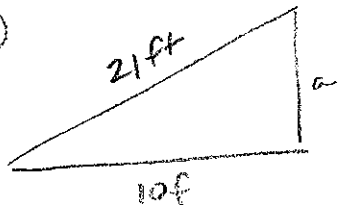
14. $61^2 = 48^2 + b^2$
$3721 = 2304 + b^2$
$\sqrt{1417} = \sqrt{b^2}$
$\boxed{37.6 = b}$

15. $c^2 = 26^2 + (\sqrt{596})^2$
$c^2 = 676 + 596$
$\sqrt{c^2} = \sqrt{1272}$
$\boxed{c = 35.7}$

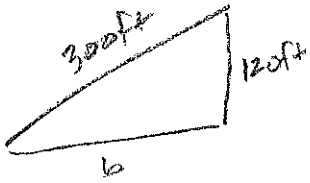
16. $(\sqrt{318})^2 = a^2 + 12^2$
$318 = a^2 + 144$
$\sqrt{174} = \sqrt{a^2}$
$\boxed{13.2 = a}$

17. $10^2 = 5^2 + 5^2$
$100 = 25 + 25$
$100 \neq 50$
No

18. $15^2 = 9^2 + 12^2$
$225 = 81 + 144$
$225 = 225$
$\boxed{\text{Yes}}$

19.


$21^2 = a^2 + 10^2$
$441 = a^2 + 100$
$\sqrt{341} = \sqrt{a^2}$
$\boxed{18.5\text{ ft} = a}$

20.


$300^2 = 120^2 + b^2$
$90{,}000 = 14{,}400 + b^2$
$\sqrt{75{,}600} = \sqrt{b^2}$
$\boxed{275.0\text{ ft}}$

Name