

Chapter 3 Pythagoras' theorem and trigonometry

3A Pythagoras' theorem

c=8.6	c=7.21	c=7.28
c=12.81	c=17.69	c=17.8
c=18.03	c=21.4	c=13.6
c=24.21	c=36.8	c=26.63
c=39.62	c=45.25	c=50.93

3B Finding the length of the shorter sides

a=10.91	a=13.75	a=5
a=6.8	a=11.84	a=22.58
b=12.37	b=9.75	b=12.49
b=16.12	b=14.73	b=8
b=16.09	b=25.48	b=18.03

3C Applying Pythagoras' theorem

1. length : 41
2. distance : 8.54
3. width : 16.0
4. height : 9.33
5. height : 13.98

3D Pythagoras in three dimensions

1. BH : 19.5cm
2. AG : 13.6cm
3. MX : 17.3cm

3E Trigonometric ratios

1.

1	2	3
$\sin\theta = 8/17$	$\sin\theta = 12/13$	$\sin\theta = 3/5$
$\cos\theta = 15/17$	$\cos\theta = 5/13$	$\cos\theta = 4/5$
$\tan\theta = 8/15$	$\tan\theta = 12/5$	$\tan\theta = 3/4$

2.

$\tan\theta = 34/45$	$\tan\theta = 25/32$	$\sin\theta = 2/3$
$\sin\theta = 11/25$	$\tan\theta = 18/13$	$\sin\theta = 15/29$

3F Calculating unknown side lengths

1.

$x=1.46$	$x=2.96$	$x=7.07$	$x=25.98$
$x=9.19$	$x=6.93$	$x=20.00$	$x=5.80$
$x=5.16$	$x=68.75$	$x=1.29$	$x=5.92$
$x=8.95$	$x=18.88$	$x=3.34$	$x=20.06$

2.

$x=3.31$	$x=17.15$	$x=8.57$	$x=6.52$
$x=3.59$	$x=5.35$	$x=9.32$	$x=2.18$
$x=3.63$	$x=5.74$	$x=24.69$	$x=1.68$
$x=5.58$	$x=69.63$	$x=33.14$	$x=12.32$
$x=15.29$	$x=0.26$	$x=36.00$	$x=18.48$

3.

$x=2.99$	$x=9.13$	$x=3.76$
$x=8.62$	$x=0.71$	$x=2.84$

4.

$x=9.51$	$x=18.80$	$x=2.49$
$x=10.87$	$x=7.31$	$x=0.40$

3G Finding an angle

1.

$\theta=23.58$	$\theta=72.54$	$\theta=2.86$	$\theta=34.78$
$\theta=73.74$	$\theta=67.38$	$\theta=23.20$	$\theta=43.51$
$\theta=40.02$	$\theta=63.26$	$\theta=12.73$	$\theta=12.16$

2.

$\theta=33.56$	$\theta=65.27$	$\theta=62.20$
$\theta=10.48$	$\theta=19.06$	$\theta=70.25$

3H Applying trigonometry

1. height : 6.9m
2. distance : 77.9m
3. distance : 19.0m
4. distance : 238.1m
5. height : 596.4m

3I Bearings

1.

50	126	157
167	234	216

2.

210	225	256
300	20	128

3.

2 km
4.68km
2.82km
4.33km