

IM1H Book 2 Selected Answers

IM1H Dream Team

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1. (a) $\angle 2, \angle 3, \angle 5, \angle 8$
(b) $\angle 1, \angle 4, \angle 6, \angle 7$
(c) $\angle 3, \angle 5$
 $\angle 2, \angle 8$
(d) $\angle 4, \angle 6$
 $\angle 1, \angle 7$
(e) Answers may vary. $\angle 1, \angle 5$
2. (a) $\angle 2 + \angle 4 = 180^\circ$
(b) $\angle 2 + \angle 1 + \angle 3 = 180^\circ$
(c) $\angle 4 = \angle 1 + \angle 3$
(d) –
(e) –
3. (a) If P is not equidistant from the coordinate axes, then P is not on the line $y = x$.
(b) Yes. Always.
4. –
5. Exactly one
6. –
7. (a) $\angle AHK \cong \angle HKD$
(b) $\angle AHK \cong \angle EHB$
(c) $\angle EHB \cong \angle HKD$
(d) If two lines are cut by a transversal such that two corresponding angles are congruent, then the lines are parallel.
(e) $\angle KHB + \angle HKD = 180^\circ$
8. (a) $\overline{RU} \parallel \overline{AT}$
(b) None

(c) $\overline{RU} \parallel \overline{AT}$
 $\overline{RN} \parallel \overline{OT}$

(d) $\overline{RU} \parallel \overline{AT}$
 $\overline{AU} \parallel \overline{NT}$

(e) $\overline{AU} \parallel \overline{NT}$

(f) None

(g) $\overline{AU} \parallel \overline{NT}$

(h) None

9. –

10. –

11. No. Two lines on the same plane that never intersect.

12. It's constant. No.

13. –

14. (a) $\angle a + \angle b + \angle c = 180^\circ$

(b) $\angle x = \angle a$
 $\angle y = \angle b$

15. (a) $B(6, 0, 0)$

$C(6, 3, 0)$

$D(0, 3, 0)$

$E(0, 0, 2)$

$F(6, 0, 2)$

$H(0, 3, 2)$

(b) $\overline{AH} = \sqrt{13}$
 $\overline{AC} = 3\sqrt{5}$
 $\overline{AF} = 2\sqrt{10}$
 $\overline{AG} = 7$

16. (a) $\overline{FD} \parallel \overline{BC}$
 $\overline{AG} \parallel \overline{CD}$

(b) $\overline{HS} \parallel \overline{YO}$
 $\overline{XO} \parallel \overline{SN}$

17. (a) $0 < x < 110$

(b) $81 < x < 143$

18. –

19. –

20. –

21. –
22. (a) $\overline{AB} : y = -\frac{1}{3}x$
 $\overline{BC} : y = -2x$
- (b) $\overline{KA} = 5$
 $\overline{KB} = 5$
 $\overline{KC} = 5$
- (c) –
- (d) –
- (e) Find the intersection of the perpendicular bisectors of any two side lengths.
23. (a) $4\sqrt{6}$
(b) $4\sqrt{5}$
24. (a) $\vec{w} = [7, 6]$
(b) $\vec{w} = [-5, 8]$
25. (a) $\overrightarrow{AB} = [3, 4]$
 $\overrightarrow{BC} = [9, -9]$
 $\overrightarrow{AB} + \overrightarrow{BC} = [12, -5]$
- (b) $\overrightarrow{AC} = \overrightarrow{AB} + \overrightarrow{BC}$
26. (a) $\sqrt{17}$
(b) $\sqrt{a^2 + b^2 + c^2}$
27. $[1, 2, 3]$
 $l = \sqrt{14}$
28. (a) $4 \times 5 \times 3$
(b) $5\sqrt{2}$
29. 30°
30. (a) 12
(b) 48
(c) $y = \frac{1}{3}x$
(d) $y = -3x + 24$
(e) $F = (\frac{36}{5}, \frac{12}{5})$
(f) $\frac{12}{5}\sqrt{10}$
(g) 96
(h) It's twice the area because it's base times height.
(i) $\frac{12}{5}\sqrt{10}$

31. (a) $y = \frac{3}{7}(x + 2)$
(b) $y = -\frac{3}{5}(x - 6)$
(c) $G = (\frac{8}{3}, 2)$
(d) Yes, M , G , and C are collinear.
(e) –

32. –

33. (a) $x = 98^\circ$
(b) $y = 73^\circ$
(c) $w = 108^\circ$
(d) $u = 26^\circ$

34. (a) $x = 0$
 $y = -\frac{2}{3}x + 4$
 $y = x + 4$
(b) $(0, 4)$

35. –