Answer Key · Lesson 3.5: Linear and Angular Speed

School Launch · Trigonometry · Unit 3 · Worksheet A · for the parent

Key

1. 372π rad/min; ≈ 3506 in/min

A wheel of radius 3 in turns at 186 revolutions per minute. Find its angular speed (rad/min, exact) and the linear speed of a point on the rim (in/min, nearest whole).

2. 266π rad/min; ≈ 10028 in/min

A wheel of radius 12 in turns at 133 revolutions per minute. Find its angular speed (rad/min, exact) and the linear speed of a point on the rim (in/min, nearest whole).

3. 136π rad/min; ≈ 1709 in/min

A wheel of radius 4 in turns at 68 revolutions per minute. Find its angular speed (rad/min, exact) and the linear speed of a point on the rim (in/min, nearest whole).

4. 140π rad/min; ≈ 7477 in/min

1. $\omega = 2\pi \cdot 70 = 140\pi$ rad/min
2. $v = 17 \cdot 140\pi = 2380\pi \approx 7477$ in/min

A wheel of radius 17 in turns at 70 revolutions per minute. Find its angular speed (rad/min, exact) and the linear speed of a point on the rim (in/min, nearest whole).

5. 518π rad/min; ≈ 21155 in/min

1. $\omega = 2\pi \cdot 259 = 518\pi$ rad/min
2. $v = 13 \cdot 518\pi = 6734\pi \approx 21155$ in/min

A wheel of radius 13 in turns at 259 revolutions per minute. Find its angular speed (rad/min, exact) and the linear speed of a point on the rim (in/min, nearest whole).

6. 310π rad/min; ≈ 2922 in/min

1. $\omega = 2\pi \cdot 155 = 310\pi$ rad/min
2. $v = 3 \cdot 310\pi = 930\pi \approx 2922$ in/min

A wheel of radius 3 in turns at 155 revolutions per minute. Find its angular speed (rad/min, exact) and the linear speed of a point on the rim (in/min, nearest whole).

7. 268π rad/min; ≈ 12629 in/min

1. $\omega = 2\pi \cdot 134 = 268\pi$ rad/min
2. $v = 15 \cdot 268\pi = 4020\pi \approx 12629$ in/min

A wheel of radius 15 in turns at 134 revolutions per minute. Find its angular speed (rad/min, exact) and the linear speed of a point on the rim (in/min, nearest whole).

8. 140π rad/min; ≈ 3958 in/min

1. $\omega = 2\pi \cdot 70 = 140\pi$ rad/min
2. $v = 9 \cdot 140\pi = 1260\pi \approx 3958$ in/min

A wheel of radius 9 in turns at 70 revolutions per minute. Find its angular speed (rad/min, exact) and the linear speed of a point on the rim (in/min, nearest whole).

9. 342π rad/min; ≈ 26861 in/min

1. $\omega = 2\pi \cdot 171 = 342\pi$ rad/min
2. $v = 25 \cdot 342\pi = 8550\pi \approx 26861$ in/min

A wheel of radius 25 in turns at 171 revolutions per minute. Find its angular speed (rad/min, exact) and the linear speed of a point on the rim (in/min, nearest whole).

10. 132π rad/min; ≈ 11611 in/min

1. $\omega = 2\pi \cdot 66 = 132\pi$ rad/min
2. $v = 28 \cdot 132\pi = 3696\pi \approx 11611$ in/min

A wheel of radius 28 in turns at 66 revolutions per minute. Find its angular speed (rad/min, exact) and the linear speed of a point on the rim (in/min, nearest whole).