Task card 1 Related Rates with Derivatives

The radius of a circle is growing at 2 in/s. How fast is the circumference growing when the radius is 7 in?

Task card 2 Related Rates with Derivatives

Each side of a square grows at 7 cm/s. How fast is the perimeter growing when each side is 20 cm?

Task card 3 Related Rates with Derivatives

Each side of a square grows at 4 m/min. How fast is the area growing when each side is 15 m?

Task card 4 Related Rates with Derivatives

A circular oil spill spreads so that its radius grows at 1 m/min. How fast is the area growing when the radius is 14 m?

Task card 5 Related Rates with Derivatives

Each edge of a cube grows at 1 in/s. How fast is the volume growing when each edge is 2 in?

Task card 6 Related Rates with Derivatives

Each side of a square grows at 5 in/s. How fast is the area growing when each side is 7 in?

Task card 7 Related Rates with Derivatives

A stone dropped in a pond makes a circular ripple whose radius grows at 6 m/min. How fast is the area growing when the radius is 17 m?

Task card 8 Related Rates with Derivatives

Each side of a square grows at 6 m/min. How fast is the perimeter growing when each side is 16 m?

Task card 9 Related Rates with Derivatives

The radius of a circle grows at 3 cm/s. How fast is the area growing when the radius is 17 cm?

Task card 10 Related Rates with Derivatives

Each side of a square grows at 1 cm/s. How fast is the area growing when each side is 3 cm?

Task card 11 Related Rates with Derivatives

Each edge of a cube grows at 3 in/s. How fast is the volume growing when each edge is 3 in?

Task card 12 Related Rates with Derivatives

The water level in a cylindrical tank of radius 3 cm rises at 1 cm/s. How fast is water flowing in (the volume's rate of change)?

Task card 13 Related Rates with Derivatives

A spherical balloon is inflated so its radius grows at 3 in/s. How fast is the volume growing when the radius is 8 in?

Task card 14 Related Rates with Derivatives

The radius of a circle grows at 1 in/s. How fast is the area growing when the radius is 17 in?

Task card 15 Related Rates with Derivatives

The water level in a cylindrical tank of radius 2 in rises at 4 in/s. How fast is water flowing in (the volume's rate of change)?

Task card 16 Related Rates with Derivatives

A circular oil spill spreads so that its radius grows at 5 in/s. How fast is the area growing when the radius is 4 in?

Task card 17 Related Rates with Derivatives

A circular oil spill spreads so that its radius grows at 6 m/min. How fast is the area growing when the radius is 11 m?

Task card 18 Related Rates with Derivatives

A spherical balloon is inflated so its radius grows at 3 in/s. How fast is the volume growing when the radius is 3 in?

Task card 19 Related Rates with Derivatives

Water is poured into a cylindrical tank of radius 6 m at 144π m^3/min. How fast is the water level rising?

Task card 20 Related Rates with Derivatives

The area of a square grows at 22 cm^2/s. How fast is each side growing when the side is 3 cm?

Task card 21 Related Rates with Derivatives

Each edge of a cube grows at 5 ft/min. How fast is the surface area growing when each edge is 2 ft?

Task card 22 Related Rates with Derivatives

The area of a circle grows at 6π m^2/min. How fast is the radius growing when the radius is 9 m?

Task card 23 Related Rates with Derivatives

The area of a circle grows at 6π m^2/min. How fast is the radius growing when the radius is 2 m?

Task card 24 Related Rates with Derivatives

The area of a circle grows at 6π in^2/s. How fast is the radius growing when the radius is 5 in?

Related Rates with Derivatives Task Cards

Recording sheet · Grade 12 · Give exact answers with no units: a whole number, a fraction in simplest form, or a multiple of π written like 24π. A negative rate means the quantity is getting smaller.

Scan to check your answers

Name: _____ Date: _____

1	2	3	4
5	6	7	8
9	10	11	12
13	14	15	16
17	18	19	20
21	22	23	24

Related Rates with Derivatives Task Cards: Answer Key

Grade 12 · Easy

The answers online

1. 4π	**2.** 28	**3.** 120
4. 28π	**5.** 12	**6.** 70
7. 204π	**8.** 24	**9.** 102π
10. 6	**11.** 81	**12.** 9π
13. 768π	**14.** 34π	**15.** 16π
16. 40π	**17.** 132π	**18.** 108π
19. 4	**20.** $\frac{11}{3}$	**21.** 120
22. $\frac{1}{3}$	**23.** $\frac{3}{2}$	**24.** $\frac{3}{5}$